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WINTER 2025 ISSUE

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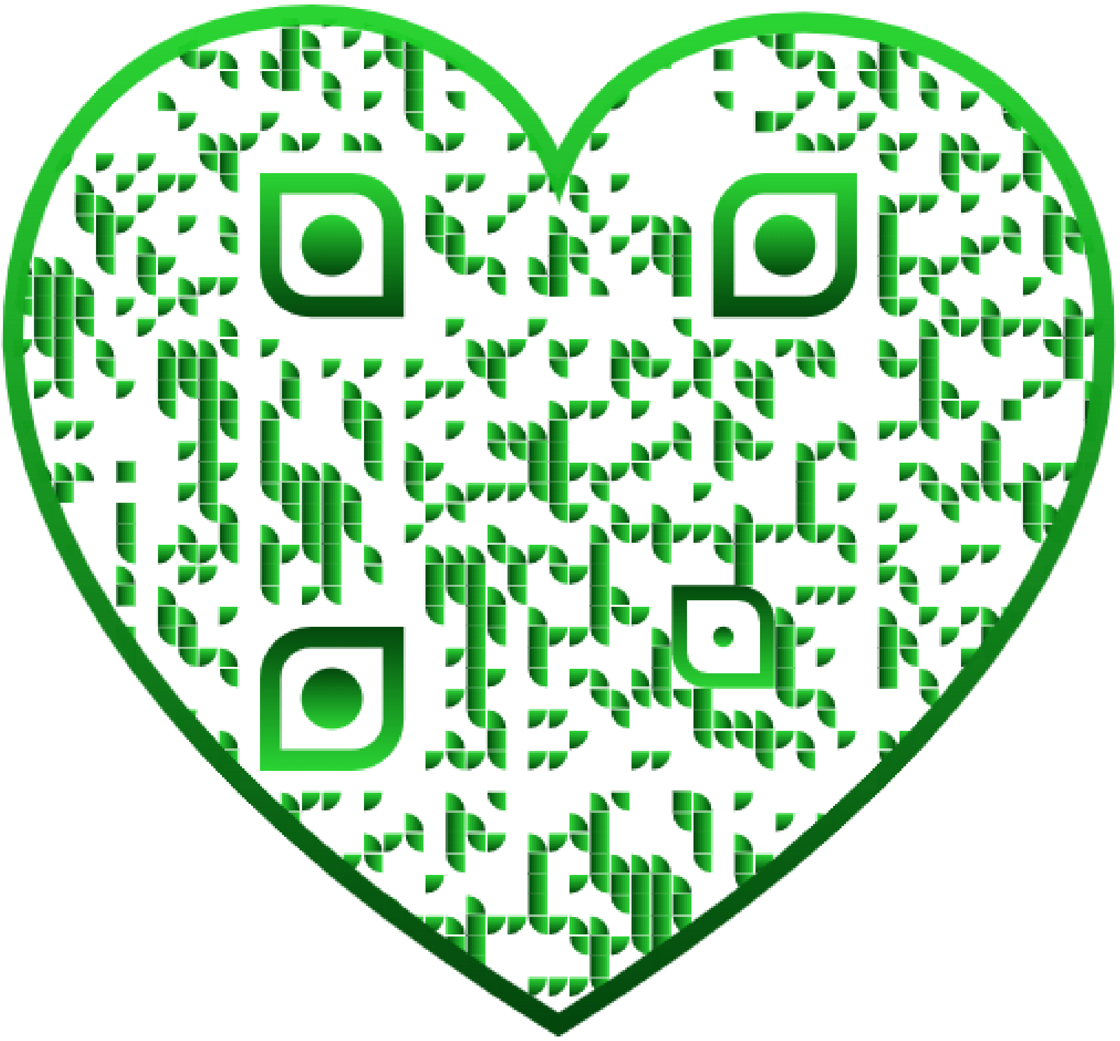

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Zeppelin Pro

AUSTRALIAN
BestBuys
AUDIO & AV

BEST BUYS AUDIO & AV • ISSUE WINTER 2025-#1
ISSN 1442-2824 ©2025

FUTURE PUBLISHING AUSTRALIA
PO Box Q1179, Queen Victoria Building, NSW 1230
Tel: 02 9955 2677 **www.whathifi.com/soundandimage**
Some screen images & art use Photoshop and Firefly AI

Editor: Jez Ford • jez.ford@futurenet.com
Contributors: Greg Borrowman, Stephen Dawson, Jez Ford, Max Langridge, Becky Roberts
Art Director: Kristian Hagen
Advertising Sales Manager: Lewis Preece
Divisional Manager & National Advertising Sales Manager: Jim Preece • jim.preece@futurenet.com
Managing Director: Neville Daniels

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The Hi-Fi Headlines
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NEWSLETTER NO.272

Our McIntosh Offering Continues to Grow

McIntosh MA12000 Integrated Amplifier – Price: $22,995

Our McIntosh lineup expands with the MA12000, joining the acclaimed C12000 pre-amplifier on our showroom floor.

This integrated amplifier is a powerhouse—weighing 64kg and delivering 350 watts per channel.

Its hybrid valve/solid-state design, a McIntosh hallmark, offers multiple digital and analogue inputs for versatile connectivity.

The sonic signature of the MA12000 is immediate. It offers a very open and detailed approach, but most notably is the iron-grip control it has over the music.

This is reminiscent of some of the earlier Krell amplifiers in their heyday. It is a little more forward than the Krell, but that 'authority' and 'ease' is just as obvious.

You are immediately drawn into the music (as you should be).

At $29,995, this amplifier is a bold statement for any audiophile seeking uncompromised performance.

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McIntosh MCD12000 SACD/CD Player & DAC

Price: $22,995

Also new to our McIntosh collection, the MCD12000 is more than a SACD/CD player—it's a premium DAC with a built-in CD transport.

Featuring McIntosh's signature hybrid valve/solid-state architecture, it delivers exceptional clarity and warmth across all your audio sources.

Priced at $22,995, the MCD12000 complements any high-end system, ensuring every note is reproduced with stunning precision.

Whether playing discs or streaming through its DAC, this unit is a versatile addition to your setup.

Rega Planar 3 RS Turntable

Price: $2,199 (with Nd5 Cartridge)

Rega Planar 3 RS has arrived, reinforcing Rega's legacy of quality, affordable turntables since 1973.

The Planar 3 RS (Rega Special) builds on the iconic Planar 3, priced at $2,199, and includes the award-winning Nd5 cartridge (worth $650), Neo Mk II power supply, and Reference ELBT belt (combined RRP $650)—offering exceptional value compared to the standard Planar 3 at $1,599 without cartridge.

With a resonance-reducing aluminium laminate plinth, external power supply, and precise engineering, the Planar 3 RS delivers outstanding vinyl playback.

Its stunning design makes it a standout in Rega's range of 10 turntables, from the $699 Planar 1 to the $27,500 Naia.

★★WINNER★★ 2025 SOUND IMAGE AWARDS

Musical Fidelity Picks Up Award (Again)

Awarded DAC of the Year at the Australian Hi-Fi Show

Musical Fidelity picks up yet another accolade, with their Nu-Vista DAC named DAC of the Year at the recent Australian Hi-Fi Show.

Since its release, the Nu-Vista by Musical Fidelity range (named after the Nuvista valve that is utilised in all models except the power supply) has gone from strength to strength, and now consists of 8 models, including amplifiers, DACs, phono amplifiers and power supplies. Globally the range continues to win awards - across all categories. While priced above the regular Musical Fidelity range, Nu-Vista represents the best that this industry has to offer, at prices well below most of its competition.

The Nu-Vista DAC delivers unparalleled clarity, making it a top choice for digital audio enthusiasts.

Visit us to experience why Musical Fidelity continues to set the standard in hi-fi innovation.

Why Upgrade Now?

Elevate your system with McIntosh's commanding MA12000 and versatile MCD12000, perfect for audiophiles craving power and precision. The Rega Planar 3 RS offers incredible value for vinyl lovers, while Musical Fidelity's Nu-Vista DAC sets a new benchmark in digital audio. Visit Len Wallis Audio to hear these products and discover why we've been trusted since 1978. Don't miss out—upgrade your listening experience today!

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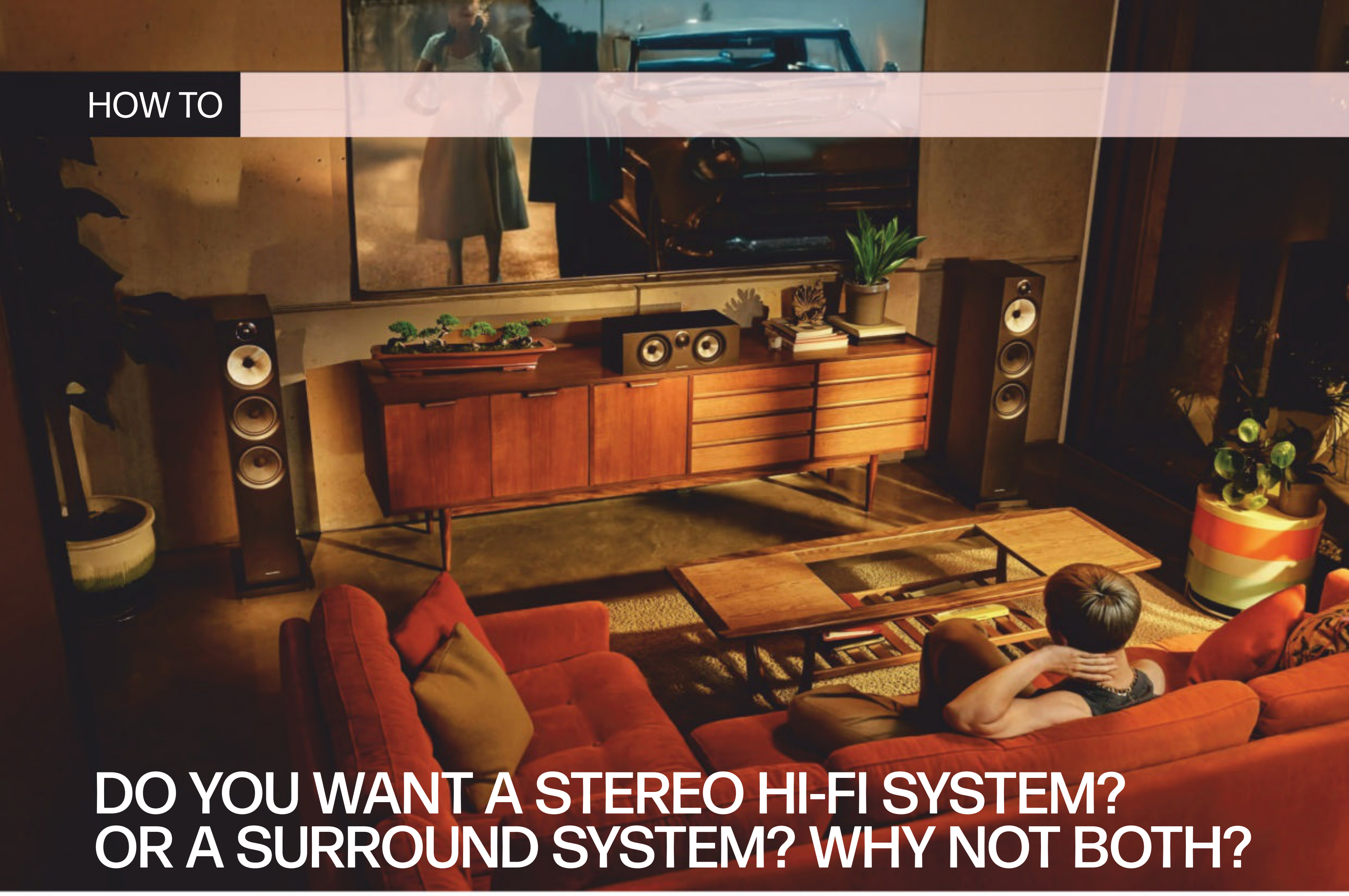

DO YOU WANT A STEREO HI-FI SYSTEM? OR A SURROUND SYSTEM? WHY NOT BOTH?

How hard is it to create a best-of-both-worlds hi-fi and home cinema solution?

What do you want in your main living area — great music, or great TV and movie entertainment? In most homes, for most people, it's the TV that takes centre stage, and if you're lucky enough to have the space, money and marital understanding to set up a surround sound system in there, you can enjoy thrilling nights of soaring movie sound.

But do you love also to relax and listen to music? The truth is that even respected AV amplifiers often can't hold a candle to the vast majority of stereo amps when it comes to two-channel music. Their funds are so distributed on the very many things that a modern receiver does that the cash left for the (multiple) amp channels simply won't pay for amps as good as those in a simple two-channel hi-fi amplifier.

And that's why the general consensus has always been that you need to decide whether stereo or surround sound is your priority, and then sacrifice one for better performance with the other.

But there is a way you can have your cake and eat it. If you have the money, appetite and a little bit of patience, building a system that includes both an AV amp and hi-fi stereo makes all sorts of sense.

What you need

The idea here is to have two systems that overlap in the middle but don't impact one another in separate use. And while this sounds like duplication, we're going to suggest that you need two amps: one to generate and amplify your surround (and perhaps height) channels, but another just for your front left and right channels

For this to work, the AV amplifier or receiver must have 'pre-out' sockets for those front left and front right speakers. You can then bypass the receiver's own power amplification and instead send those two channels out to the stereo amp.

Such pre-outs are pretty common on AV amps, even on some lower-level models. But for best results you'll also need the stereo amp to have a dedicated input for the task — one that bypasses the unit's own volume control and other EQ functions. On integrated stereo amps, this may be labelled 'home theatre bypass, or 'AV input'. Some use more proprietary names: Musical Fidelity (see above right) and Rotel label the input 'HT', others may call it 'power amp'.

The other option is to have a stereo power amp or separate power amps (like the March Audio models above right); these have no volume controls and only a single input each, so you leave the AV receiver in complete control; if you're using an auto-calibration system on your receiver it will set the levels perfectly for the stereo amp's 100% passthrough. Besides, all volume controls add a small amount of distortion and affect transparency, too, so removing one from the chain is almost always a good thing to do.

In theory, a system such as this can be set up with any stereo amp or power amps with standard RCA inputs. If you're set on using an amp that doesn't have a dedicated AV input, you can instead carefully set the volume control at the same level whenever you want to use it in tandem with your surround amp. That's more fiddly and less precise — you'll have to know exactly where to put that amp's volume control, and put it exactly there each time. But it can work.

If you've upgraded your amp power for the left and right channels, should you also use better L and R speakers? Here there are arguments for and against. From a stereo music perspective, the answer would be yes: have a great stereo pair in those positions.

But of course a good surround system needs at least tonally-matched speakers all the way round, and ideally size-matched, too. While you can get away with smaller

- OUTPUT +
GAIN
HIGH
LOW
TRIG
INPUT
100 - 240 VAC
50 - 60 Hz

Run from your receiver's left and right preouts to a high-quality stereo amplifier – or a pair of hi-fi power amps, like these from March Audio.

height speakers and even rear speakers, a mismatch of large L and R speakers with a lesser centre-channel speaker will ruin a surround system's performance, preventing smooth pans of sound across the front, and potentially affecting dialogue intelligibility.

So we would start the search by looking for acclaimed stereo speakers — either standmounts or floorstanders — that can be packaged up with a matching centre channel and subwoofer from the same range (or recommended by the retailer), and ideally with rears and height speakers that are lesser versions of the same speaker, to ensure that tonal match all round.

There is one other option for big stereo fans who can't accommodate a large centre speaker, and that's to have a 'phantom centre'. If your receiver allows you to set up a 4.1 or 4.1.2 configuration, you can do without a centre altogether. Just bear in mind that this is less effective for multiple listening positions, and can make dialogue less clear than a fully dedicated centre. Having said that we're great fans of using 4.1 and 4.1.x for playing music in surround.

It might seem obvious to say, but there's no point in going down this route if you are only intending to use small satellite speakers with a subwoofer; such as system wouldn't generally be a first choice where music is to be a key priority.

Set-up scenarios

Once you've got your separate stereo amp and AV receiver with pre-outs, the wiring is pretty straightforward (well, apart from all those fiddly speaker cables to connect). For the signal chain, just plug your front-left and front-right speakers into the terminals on the stereo amp, and all of the other speakers (centre, sub, surrounds and, if using, height speakers) into the relevant terminals on the AV amp. Then use standard interconnects to hook up the front-left and front-right pre-outs of the AV amp to the AV input of the stereo amp.

Then you can calibrate the speakers using the AV amp's built-in microphone-driven set-up. In most cases, you'll need to tell the AV amp the speaker configuration you're using, whether 5.1 or 7.1, or 7.1.4 for Dolby Atmos, and with many amps you won't need to specify that you're using the pre-outs at all; your extra amp is effectively invisible to the calibration system.

On some AV receivers, particularly higher-end ones, you'll find an option called something like 'amp assign' where you can let the AV receiver know that you're using an external amp to power the front two speakers.

You should then be in a position to begin the automatic speaker calibration as normal, checking that the test sounds are coming out of all speakers as expected.

Many receivers will allow you to run the calibration process twice (or more) to create two 'profiles', one for surround, and one for stereo music. That way you can set one soundfield up with a precise sweet spot in your listening position, and another so that your companions will also get a better experience. We often set up a third and fourth profile, one for Atmos music in the aforementioned 4.1 or 4.1.2, and another for stereo music with the subwoofer added (i.e. 2.1, instead or 2.0 channels). Once you've heard your favourite dance tracks in 2.1, there may be no going back to 2.0!

So by this point, you'll hopefully have a perfectly balanced volume-matched surround sound system. You can connect all your video sources to the AV amplifier as normal, but two-channel music sources (turntable, CD player, music streamer etc.) can be connected direct to the stereo amp — unless you're hooked on 2.1 listening, in which case use the receiver for everything.

Benefits & drawbacks

The obvious benefit here that you now have a dedicated stereo system for music, a full surround system for movies.

Also, in some cases, by using an external amplifier for two of your speakers, your AV receiver's own internal amplifiers can be directed to power other speakers, opening the option for a surround system with more speakers. Say an AV receiver has nine built-in amp channels, which you can deploy in various configurations. Once you take responsibility for powering the front-left and front-right speakers away from it, you can use those two 'spare' amplifiers to power two more Atmos speakers, for example.

The obvious drawback of a 'double' system like this is cost. You're basically adding a stereo amplifier on top of the price of an AV receiver. Some will argue that if you've got 'x' amount to spend on a system, you should get the best AV receiver or stereo amp you can afford, rather than compromise on both.

But as we say, not many AV receivers do a really good job with stereo music. And a two-channel hi-fi obviously can't do surround sound at all. That's why the best-of-both-worlds approach is so appealing: it allows you to have a fairly simply but hybrid system to satisfy both your music and movie needs.

ANTHEM
-35.0
ANTHEM
MRX SLM

Start with an AV receiver... and not all are large – witness Anthem's award-winning little 5.1-channel MRX SLM, pictured here alongside one of the company's full-sized receivers.

BenQ W2720i

HOME THEATRE PROJECTOR

BenQ puts smart Android streaming within a full-size home cinema projector; the combination makes for both powerful and convenient delivery.

BenQ is back with its latest reasonably-affordable Ultra-HD home theatre projector, the W2720i. The 'i' suffix marks that this projector is not just a passive unit, ready to accept signals from external devices, but also has network streaming capabilities itself. We'll return to those streaming functions, but first let's look at the BenQ W2720i as a display engine.

Equipment

Initially we assumed that the W2720i would be a modest upgrade of the W2700, which we reviewed some — goodness! — six years ago. But the upgrade is far from modest. As a display engine the W2720i is quite a different creature.

To start with, this new model is 50% heavier than the W2700, and larger on all three dimensions. It feels weighty and solid when you lift it, inspiring confidence.

The older model had a quite long-life lamp, but it was conventional. The W2720i upgrades that to a LED-based light engine with 20,000 hours of life in the hungriest modes, and 30,000 in eco mode. That 20,000 hours represents more than 13 years of viewing four hours per day.

Presumably it's the LED illumination which helps bump up the specified output from 2000 to 2500 ANSI lumens, and the contrast ratio from 30,000:1 to two million to one! (BenQ specifies that last as 'FOFO', for full on/full off.) Also featured is improved video processing, including an AI picture mode.

As has been BenQ's habit in recent years, it powers its Ultra-HD image with a 0.47-inch (12mm) Digital Micromirror Device from Texas Instruments, not the larger ones, nor those with higher physical resolution. The actual number of mirrors on the device is a little over two million, due to its 1920 × 1080-pixel resolution. The final Ultra HD — 3840 × 2160 pixels — is achieved by means of 'pixel-shifting' technology. Each physical pixel is used to display four pixels of the image in sequence, shifting then in a two-by-two grid in the time taken for each frame. (We remain surprised that a consumer-level native 4K or UHD DMD has yet to be made available, but there are likely physical problems with it. If that many pixels were stuffed into a small DMD, then the inter-mirror spaces would be larger in proportion, leading to an intractable 'screen-door' effect. And a larger DMD would require a physically large projector. So pixel-shifting it is.)

The resulting image is projected through a moderately short-throw optical system with a 1.3:1 zoom range. For a 100-inch (2.54 metre) diagonal, the projector needs to be placed between 2.214 and 2.878 metres from the screen. Also included is a vertical lens-shift control for easier matching of projector to screen.

There are three external HDMI inputs, all supporting Ultra-HD signals and HDCP 2.0. One adds ARC support, allowing sound to be sent back via HDMI to a home theatre receiver. Another supports 120Hz frame rates, for high-end gaming systems.

> The ‘i’ suffix marks that this projector is not just a passive unit, ready to accept signals from external devices, but also has network streaming capabilities itself.

Setting up

There’s one tiny little innovation on this projector, probably cost-free to BenQ, that we haven’t noticed before. On the underside, the centre of gravity is clearly marked. This is tremendously helpful for balancing a ceiling-mounted projector.

As with several earlier BenQ projectors, the smart/streaming stuff is handled by a dongle — though the word ‘dongle’ is not entirely fair, as the QS02 device is very compact, with a mini-HDMI output on one end and a MicroUSB socket on the other, and it slips into a purpose-designed bay inside the projector — the cables for power and picture are contained therein. So for all practical purposes it simply becomes part of the projector. The only reason we can think of as to why it isn’t fully built in would be that there may be markets where this feature isn’t wanted or can be varied.

The QS02 is an Android-TV device, which means it works with a wealth of Google apps. It has its own selection on the list of projector inputs (where it’s called Android TV). If you use an Android phone, as we do, setting this up is super easy. We told our phone (by voice) to set up a new device. Within a couple of seconds, it identified the QS02. It asked for a few authorisations, and with no further ado connected to our network. It was fairly slow to perform a firmware upgrade — it took maybe 20 minutes, but Android/Google TV often does — and it all worked smoothly. Most of the streaming services we wanted were already installed, and we added a few more easily from the Google Play Store.

When you first switch on the projector, it displays a question panel, asking you the projector’s orientation, so that you can get the image on the screen straight away. After that, it performs an autocalibration using a black-and-white test pattern. Early in the piece, it also asked us to pair the included remote control. This is a dual-function remote, operating some of the basic projector functions via IR, and also the smart module via RF. Pairing was fast and easy, as guided by the on-screen display.

At some point during the set-up, the projector seemed to have applied a modest amount of vertical keystone correction. That might be something worth double-checking for those installing the projector, since this always degrades the image. There’s a dedicated access key on the remote so it’s easy to check.

Performance

It would be a brave reviewer indeed to argue that the grey scale or colour mapping is imperfect, given the specific (i.e. the serial number of the projector is printed on it) factory calibration report included with the projector. On the grayscale chart, any variance from the 2.4 reference was invisible to our eyes — the measurement line exactly tracked the reference line — and so inaccuracy would seem to be well under, perhaps, 0.1 percent. The Rec.709 colour gamut seems to be a perfect match from the graph (BenQ specifies it at 98% coverage), which means that standard Blu-ray, DVD and broadcast TV is displayed to virtual perfection. The wider DCI-P3 standard is 90% matched, says BenQ, with what looks to be a little more coverage on one axis and a little less on the other. Rec.2020 isn’t mentioned. Finally, the Delta E measurement is 0.63. Delta E is a measure of the difference between a display colour and the standard. Anything less than 1 is regarded as imperceptible to the human eye.

In actual use, the image quality was extremely impressive, and often stunning. Top-notch TV shows like *Scrublands* were cinematic in their delivery. Studio TV shows were beautifully detailed, yet remained naturalistic.

Things took a step up with Ultra-HD Blu-ray as a source. While such contrast figures as two million to one probably don’t properly reflect real-life performance, the BenQ W2720i did manage to deliver a depth of black, and contrast range, that left nothing to be desired. The subjective

> “The image quality was extremely impressive, and often stunning. Top-notch TV shows like ‘Scrublands’ were cinematic in their delivery.”

sense of blacks when viewing in a darkened theatre was that they were complete.

Sometimes the AI processing was distracting. A pan across a dark scene, bringing a brighter sky into the shot could result in a still-dark area also getting a surprising boost in brightness. In the end, we switched to “Filmmaker” mode, rather than AI, for more consistent and just as impressive picture performance.

In terms of resolution, our Ultra-HD test pattern showed that the projector displayed all 8-million-plus pixels, albeit in a very slightly smudgier way than on, say, a panel display. That said, even though we sat close, the subjective sense of sharpness was first-class.

We paid particular attention to the smoothness of motion. First, high-frame-rate (60fps) Ultra-HD was beautifully managed, looking even sharper and more detailed than regular Ultra-HD.

Regular 24fps content was nicely handled too, for the most part. In material which has been shot for too short an exposure time, resulting in noticeable judder, the judder made it right through to the display screen. At first we couldn’t see any motion-smoothing options because, for some reason, they are in the picture menu under “Advanced Color Settings/Cinemaster”, and off by default. But there you can switch on “Motion Enhancer 4K”, choosing one of three levels. The levels seem to control the number of frames created and threaded between the original signal frames. The high level made our go-to test silky-smooth without leaving any sense of the soap-opera effect, without seeming to wash out film grain, and with only minimal (barely noticeable) picture artefacts in the most susceptible places.

With our interlaced 50Hz test discs, both DVD and Blu-ray were very nicely handled, with fast switching between bobbing and weaving processing, and good motion-adaptive processing operating in different parts of the screen when required. Occasionally we noticed some of the kind of judder that marks 50 hertz material played at 60 hertz. We found that Motion Enhancer 4K eliminated that. We thought that too was tied to the AI picture mode, but when we double-checked, later, we were unable to replicate the judder.

The QS02 streamer by default outputs at 60Hz, even if it’s playing the likes of 9Now and other Australian streaming services which run at 50Hz. This looked a little jerky, although less so than we expected. It can be corrected, if you’re bothered by it, by going into the Android set-up menu (which is separate to the main projector menu), then drilling down through Device Preferences, Display and Sound, to Screen Resolution and, therein, Display Mode. There are plenty of options. We found that 4k2K-50hz was ideal for 9Now. But if you don’t want to do such fiddling, the Motion Enhancer takes the edge off the judder.

Conclusion

The BenQ W2720i projector is the complete deal for those wanting a large better-than-cinema-quality home theatre picture in the home. Couple that with a super long-life light source and very reasonable pricing, and this projector is truly a winner.

BenQ W2720i

- True Ultra-HD resolution
- Excellent blacks and colours
- Long lamp life

- No Dolby Vision
- Excessive intervention required for smooth-streaming 50Hz content

Price: $3299

Projection technology: 12mm (0.47-inch) FHD Digital Micromirror Device with XPR 4x pixel shifting technology

Resolution: 3840 x 2160 pixels

Lamp: 4LED

Lamp life: Normal 20,000 hours, Eco 30,000 hours, Dynamic 20,000 hours

Contrast ratio: 2,000,000:1 (FOFO)

Brightness: 2500 ANSI lumens

Inputs: 3 x HDMI (3 x UHD, 1 x ARC, 1 x 4K@120Hz, 3 x HDCP 2.3)

Outputs: stereo audio (3.5mm), optical digital audio

Other: 1 x RS-232C, 1 x USB (to supply 2.5-amp power), 1 x USB (media playback), 1 x USB Mini-B (firmware upgrades), 1 x 12-volt trigger

Audio: 2 x 5W speakers

Dimensions (whd): 420 x 143 x 305mm

Weight: 6.4kg

Warranty: Three years or 20,000 hours LED; one year for accessories (remote, QS02)

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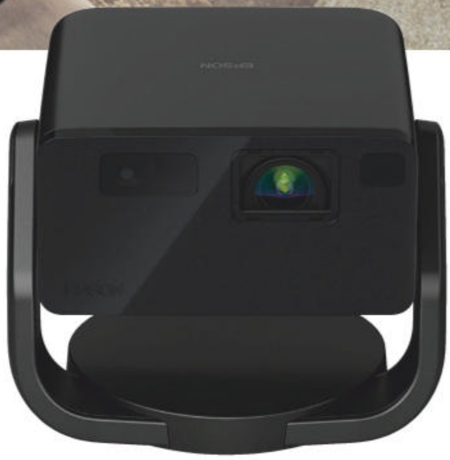
EPSON EPIQVISION EF-22B

SMART MINI PROJECTOR

Projection guru Epson delivers a small projector with a big vision at a nice price, sticking with 2K resolution but bringing Google smarts and built-in sound.



When we got to meet Epson's global Chairman and Director Mr. Yasunori Ogawa last year, we asked him about the future of projection. He highlighted two areas of future growth.

The first was multiwall projection, he said, to create full room immersive experiences (exciting, but potentially tricky with source material of movies and TV shows). Second was a trend which is already well under way: the mini projector which can be moved around the home, maybe shone onto walls, bringing its own smart streaming and speakers, and preferably overcoming ambient light in the process.

"This is not specific to Australia," he told us, "but we've just got to make the projectors more compact, brighter and easier to use — for example, using it around the home. This is something we've seen in China recently and especially among the younger demographic: they find having a big flat panel TV to be a waste of space. So there's been a big trend towards having very compact projectors that they can connect to the internet and also move from place to place in the house as they see fit.

"So this trend started in China, but we're starting to see it slowly catch on in other markets as well. And to accelerate this, we want to make our products more compact, brighter."

Design & features

So here's the result, with Epson making its bid for convenience projection glory, with the seriously eye-catching EF-22. Indeed it has introduced two related mini laser TV projectors for the home — there is also an EF-21. Both are very much moveable at 2.3/3kg weight, but they are not 'portable', i.e. there's no battery power. The models differ only in the inclusion of an adjustable fixed stand on the EF-22, and different colours: black for the EF-22, hence its 'B' on the model number; warm white or 'smoke ice green' for the EF-21. (These colour options are rather reduced here compared with some markets which offer the EF-22 in Diamond White, Onyx Black, Stone Blue, Quartz Rose and Opal Green, while the EF-21 gains a Rose option.)

The little stand is certainly a useful addition: the main projector body sits inside a cradle, within which it can be angled up or down and rotated around, a bit like one of those automatic stage spotlights, though not (yet!) spinning around robotically. This encasement can make it seem small, though in reality the projector section isn't all that much smaller than a 'regular' compact coffee-table projector.

The EF-22 is not too heavy (just 3kg), and the remarkable ease with which the

> "The Epson EF-22 is bright enough, colourful enough and easy enough to set up that it qualifies as one of the lifestyle projection world's more engaging options..."

projector can rotate through a full 360 degrees on its circular base or tilt through 150 degrees on its cradle attachment — even becoming a ceiling projector if you wish — really does make it easy to move from room to room or even house to house, especially given an attractive felt section on its rear hides a built-in stereo speaker system. It becomes even more easily portable if you sort yourself out with its optional Custom Travel Case.

EF-22 versus EF-21? It'll be down to your proposed use whether the cradle mount adds enough to the EF-22's utility to justify its extra cost over the cradle-free EF-21. We found it very handy even for a single position aimed at our 100-inch screen. But if you do intend simply to site it and aim it in an easy semi-permanent position, there's no penalty for going with the cheaper EF-21.

The mini projectors ship with a very likeable remote control. It's comfortable to hold while being big enough to be easy to find in a dark room, its button layout is logical and spacious, and while it isn't backlit, its most important buttons are white and faintly luminous, so they're relatively easy to find without having to switch the lights on.

Couple the EF-22B's clever and well-built design with the potential extra quality made possible by the relatively large main projector element, and it begins to look like a great best-of-both-worlds solution.

The specifications are the same for the EF-22 and EF-21; both bring 1000 lumens from a laser light source, achieving a quoted 5,000,000:1 contrast ratio, and importantly maintaining the brightness fully for colours as well as white, thanks to Epson's 3LCD three-chip technology.

They can achieve an image size of up to 150 inches, and the larger an image you intend to create, the more we would, as ever, recommend using a dedicated screen, as we do for testing, not only to get the best lighting result from your projector but to provide a truly flat surface for its image delivery. Either way its laser lighting system is rated for up to 10 years of use without any of the replacement bulbs required by traditional lamp-based projectors.

The resolution here is 2K (1920 × 1080) rather than 4K, which is one key thing which keeps the pricing attractive: $1299 for the white or green EF-21, and $1599 for the black EF-22 with the stand. Yet despite its 2K resolution the Epson is capable of playing the basic HDR10 and HLG high dynamic range formats via both its internal apps or external sources, even though there's no support for Dolby Vision or HDR10+ formats.

Set-up

Being able to rotate and tilt the EF-22B isn't its only set-up aid. As befits this genre of projector the EF-21 and EF-22 come with internal smarts and speakers to operate as standalone entertainment devices. Here the smart interface is Google TV, including Netflix.

But there is also external connectivity, slightly unusual in having a single HDMI 1.4 input (with ARC, presumably to retrieve sound from the internal Google TV), a USB-A slot listed as being for connecting "a commercially available USB device such as a webcam, external HDD, or keyboard", a minijack analogue audio output suitable for headphones, and also a USB-B socket, but not for computer playback, rather a service port "not normally used". A laptop could be connected wirelessly to the Google TV interface, or more robustly using HDMI.

There's also Bluetooth wireless connectivity, so you could play music to the EF-22's built-in twin 5W stereo speaker system as a Bluetooth speaker, if you wish.

During set-up you quite quickly find yourself within Google TV, which requires a Google sign-in, but which then offers a well regionalised group of apps for immediate installation, including all five broadcast TV catch-up apps, as well as YouTube, Prime, Stan, Disney+, Foxtel, Paramount, AppleTV, Optus Sport, and two Epson apps, 'Projector Update' and 'Online Meetings'. (We're fairly sure we unchecked a good few and they downloaded anyway, but you can trim them later.)

Finally you reach a License Agreement from Epson to agree with: read this carefully, it says, but we couldn't: the QR code and listed link leads to a page where you select your model and are then offered only software (that 'Online Meetings' again); the only terms listed there are for using the website.

Feeling thus unbound by any restrictions from these missing conditions, we ploughed forth boldly and pressed 'Agree'.

Google's bouncing balls then began dancing as Google TV set up. Tea break required: it took over 30 minutes! As with the BenQ projector, this is a normal delay for Android or Google TV; it's only the once.

Only then did we get into the so-called 'EpiqSense' set-up system; this is launched from the bottom right key of the projector (we'd missed it among the YouTube, Netflix and Prime quick keys). It offers automatic keystone correction (to get the sides of the image perpendicular), image size (zoom) and focus. The automatic system moves the image inside any objects detected, which will put the picture straight on a screen if you have one; otherwise we found the four-point manual keystone worked extremely well to correct our trapezoidal image (the EF-22 fires up from its position, so we had it tilting down from our rear projection shelf, though firing straight on).

Viewing sessions

As hoped, in many ways the Epson EF-22 performed more like a full-sized projector rather than a portable lifestyle one.

This was especially true when it came to brightness. Pictures enjoyed more pop and punch than from other projectors one might put in a 'lifestyle' projector class; it arguably cut through ambient

light better than any other projector in its class, even if it won't trouble higher-level units with properly-quoted lumen levels up around 3000 or above. Colours were vibrant, too dynamic in the Dynamic mode, a bit too vivid in the Vivid mode: they are well-named! A more considered, balanced and accurate colour performance was achieved with the Cinema preset, and we headed also to play with the Custom mode; we found that broadcast TV catch-up shows like *Masterchef Australia* could benefit from a gamma lift, brightening faces to more realistic tones, otherwise skin could look a touch jaundiced under some of the EF-22B's other picture presets. But overall the Epson's ability to deliver high brightness unlocks a colour gamut that avoids either forced colours or the washed-out look of less balanced performers.

There is also the trick that the projector can accept a 4K signal and downscale it to 1080p while making use of HDR information from 4K content. A proper screen certainly helped maintain the deeper black tones and detail there which can be thus delivered; this is harder to maintain with wall projection against any sort of ambient light, where predominantly dark scenes may appear behind a quite pronounced layer of greyness, lacking some of the conviction, colour impact and sense of depth the projector provides so well elsewhere. We'd still strongly recommend that you get your room as dark as you can, at least if you're watching something intense like a film or video game. But the same can be said of many projectors costing way more and offering far fewer convenience features than this.

> “Couple the EF-22B's clever design with the potential extra quality made possible by the relatively large main projector element, and it's looking like a great best-of-both-worlds solution…”

The EF-22's excellent on-screen focus dial should be set manually to achieve best detail and sharpness; while from close-up you can see the 2K grid on static text and white areas, moving images maintain a crisp, dense feel even when pushed towards a larger screen size. While it doesn't ping with sharpness as can higher-level 4K projection, the detailed feel here was impressively retained even during dark scenes, as the EF-22B avoided the sort of hollow black crush or ‘glowing wash’ detail-scrubbing effects many convenience-based projectors can suffer. All this is just as well, as the EF-22B doesn't provide that many picture fine-tuning menu tools with which you might try to tackle its limitations.

While the EF-22B's sharpness, brightness and rich colours make it a fun gaming display, it takes 76ms to render images received via HDMI input: a little long for really competitive games like *Call Of Duty*.

For the most part, though, especially in the sort of relatively casual and day-time viewing environments that lifestyle projectors often find themselves working in, the Epson EF-22B's weaknesses typically have far less impact than its strengths.

Sound

The Epson's sound system surprised us by sounding quite good — intelligible speech, quite wide musical background for what is a small box-bound audio system as you turn it up to quite impressive levels, depending on the chosen sound mode. It is helped, perhaps, by a passive radiator in addition to the usual two small speakers. But as is the case for projectors of this type, almost without exception, the sound is fine for a casual viewing session, but is inadequate to support the size of cinematic bigscreen image the EF-22 is designed to deliver. The projector and its sound may be behind you, or to the side, challenging the brain to tie it to the action in front of you, an inherent problem with sound systems in projectors that are designed to be “moved around the home”. The most convenient partner can often be a decent Bluetooth speaker which can move with the projector and be positioned below the screen, but the Epson seems to have only Bluetooth in (and just the SBC codec for that), and no ability to share its audio via outward Bluetooth. You might use HDMI ARC to hook it to a sound system in your main location, then live with its own sound in a study, bedroom or recreation-room session.

Verdict

The Epson EF-22B is bright enough, colourful enough and easy enough to set up that it qualifies as one of the lifestyle projection world's more engaging options — especially if you're looking for an affordable move-around-the-home projector that can also settle into a main room, perhaps with sound attached and a proper screen, to deliver the kind of cinematic entertainment for which Epson is rightly renowned.

EPSON EF-22B

- Epson-quality projection
- Brighter than most small projectors
- Rotating stand & smart set-up
- Good brightness for its size…
- …but lumens ultimately limited
- Only one HDMI input

Price: $1599

Projection type: 3LCD
Resolution: 1920x1080
Light source: laser diode
Output: 1000 lumens (white & colour)
Throw ratio: 1 to 1.81
HDR support: HDR10, HLG
Input lag: 76ms (60Hz)
Inputs: HDMI (ARC), USB A (storage, camera/mic), USB-B
Outputs: headphone minijack
Audio: 2 x 5W + passive radiator
Dimensions: 19 x 24 x 19cm
Weight: 3kg

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All content featured is available for purchase or rent from the Kaleidescape US movie store. Content availability varies by territory.

LEICA
SUMMICRON-P 1:2.0-2.3/9-15 ASPH.
LEICA CINE PLAY

LEICA CINE PLAY 1

SMART MINI PROJECTOR

The German camera-maker’s second projector is smaller and smarter, and proves technically brilliant at delivering big-screen images wherever you choose to put it.

This is another ‘moveable’ little projector, but it aims at a higher level, both in resolution and in performance. It comes from legendary German camera company Leica as only its second-ever cinema projector, following on from the $13,999 Cine 1 ‘Cinema TV’, a wall-hugging ultra-short-throw projector. This second model is rather more affordable, at $5990, and like its predecessor is based on a Hisense model, but again has been largely re-engineered, gaining a notable advantage (and much of the higher price) from its lens quality. Leica is famed for the purity of its lenses, a manufacturing skill which lies at the heart of the whole three-winged Leica Group.

Build & facilities

So while the front lens baffle on this Cine Play 1 may look similar to the Hisense C2 Ultra, the speakers have been moved away from the front, and also the lens here is labelled ‘Summicron-P, 1:2.0 – 2.3/9–15 ASPH’. And that’s your big difference: the glass lens’s aperture range can open from f/2.0 to f/2.3, the focal length is between 9mm and 15mm, while ASPH stands for ‘Aspherical’, indicating that the lens contains an aspherical element designed to reduce optical aberration and improve image quality. The front panel is also here made of glass, not a polymer variant.

Overall this Cine Play 1 is not strictly portable (it doesn’t have battery power and once on its optional stand the combination is more than 12kg) but it is fairly easily moved around the home. It has smart set-up systems to get the image quickly into place and suitably squared up, wherever you may choose to shine it.

The rest of the redesigned casing looks very Leica, almost Bauhaus, its aluminium shell wrapping right around the sides, punctuated by a grid of holes left and right; the top is plain matte silver with just the power button, a couple of LEDs and that classic red Leica dot in the centre. Otherwise there are no control buttons at all on the projector itself, which is unusual, though the C2 is the same.

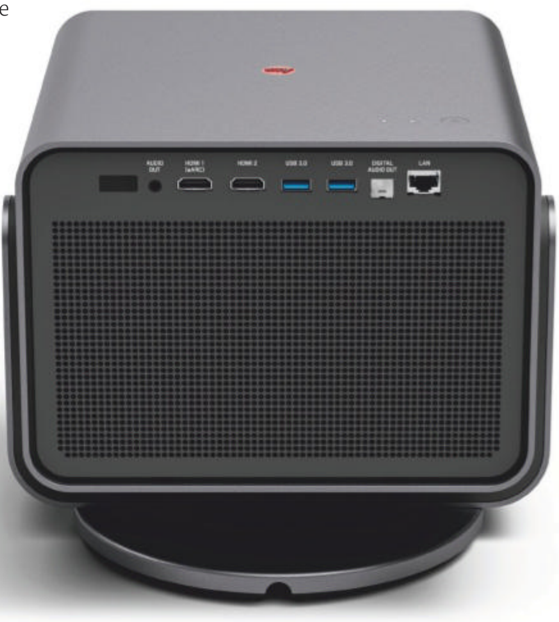
Round the back only the ventilation grille is different (here upgraded to aluminium); the socketry includes two HDMI 2.1 inputs, one with eARC enabling the projector to give this sound back to an upline AV receiver; usefully there is also an optical digital audio output and an analogue minijack output for this purpose, also good for headphones. There are two USB-A slots, both USB 3.0, for video or audio playback, and there is Ethernet networking as an alternative to the built-in Wi-Fi. Either form of networking enables AirPlay streaming and screen mirroring.

There is also Bluetooth audio streaming, should you wish to use the internal speakers for music playback: this is profile 5.3, the codecs unlisted, but Leica confirms these are limited to basic SBC and AAC.

As for the video spec, the light source is a triple RGB laser, with all the advantages of long life and no bulb replacement: good for more than 25,000 hours, says Leica, which might be four hours each day for 17 years.

The imaging device is again an 0.47-inch Texas Instruments digital micromirror device, its native resolution almost certainly 2K, increased to a supposed 4K by flipping its micromirrors and delivering four hits to the screen per frame, shifted by half a pixel in four directions.

While this DLP pixel flipping does not deliver the simple stability of native 4K, in practice we find it to achieve a final resolution which is something close to, if not actually quite, full 4K.



> "This second shining Leica – smaller, more versatile, and more competitively priced – is a brilliant, easy-to-use and significantly-superior smart mini projector....

Brightness, or lumen output at least, is quoted as "up to 3000 lumens", noting this to be delivered in the projector's 'Ultra' mode. Native contrast is 1500 to 1 but dynamic contrast lifts this to 2 million to one (likely measured as FOFO). More than 100% of the Rec.2020 colour gamut is covered, and there is compatibility with high dynamic range in Dolby Vision, HDR10+ and broadcast HLG flavours.

In addition to the superior glass, Leica also adds Leica Image Optimization (LIO). This is secret sauce, described by Leica only as 'special algorithms' with the promise of "particularly natural colour rendition, richly detailed colour gradation and an outstanding contrast ratio".

Setting up

The Cine Play 1 comes with a desktop stand, but we were also supplied the optional two-piece floor stand, which is as impressively built as the projector itself, and includes gold-plated power contacts through each section (as does the desktop stand) so that the mains cable can plug into the base for neatness, rather than the projector. This stand left the projector's lens around 80cm off the floor, able to swivel easily up and down, or to be rotated by simply turning the stand.

Once powered up, the Leica immediately headed into its set-up menus, spread liberally across half the room in our case because — unlike many such small projectors — the Cine Play 1 doesn't seem to do the auto-fitting thing as soon as you switch it on. Get into Settings, then Projector, then either select 'Fit my screen', or use the 'zoom' and 'reposition' buttons to get the image where you want it. There is autokeystone, but manual adjustment of one corner was enough for us.

The result was not only a perfect screen-fitting image, but a bright and powerful and astoundingly clear and crisp image. There was no softness on home-page text: all clean lines and sharp edges, even from this off-axis position.

This was remarkable for several reasons. Firstly there was some daylight in the room during set-up, though this didn't seem to have too much effect on the projector's brightness; we've seen full-size projectors struggle more against ambient light than this. And secondly we had the Cine Play 1 set up way off-axis (our room seating precluded putting the projector on its pole centrally); it was perhaps 30 degrees to the right of the centre line and some three metres distance, so that we would expect its abilities to be significantly compromised. And yet apparently not so much!

We checked the apps, many of which are preloaded, including Netflix, while others are available to install from the VIDAA app store. Note there's no 7plus available on VIDAA here, nor any of Foxtel's apps either old (Foxtel Now) or new (Binge, Flash etc.). On the other hand there's a good dose of extra free stuff under 'VIDAA TV' and from other available apps.

We were soon watching content, though to give the Cine Play 1 its best shot we first removed the tall projector stand and replaced the desktop stand, in order to move the projector to our normal central projection shelf, three metres from the screen and properly central; we could then use minimal keystone for set-up and thereby have fewer wasted pixels.

This versatility of positioning, and the substantial optical zoom, allows delivery of screen sizes from 65-inch diagonal up to a massive 300 inches (if you have sufficient distance and don't overly suffer from light loss). For a 100-inch diagonal screen the distance can be anything from 2 to 3.3 metres distance; you'll need 3 to 5 metres distance to throw a 150-inch screen.

Viewing sessions

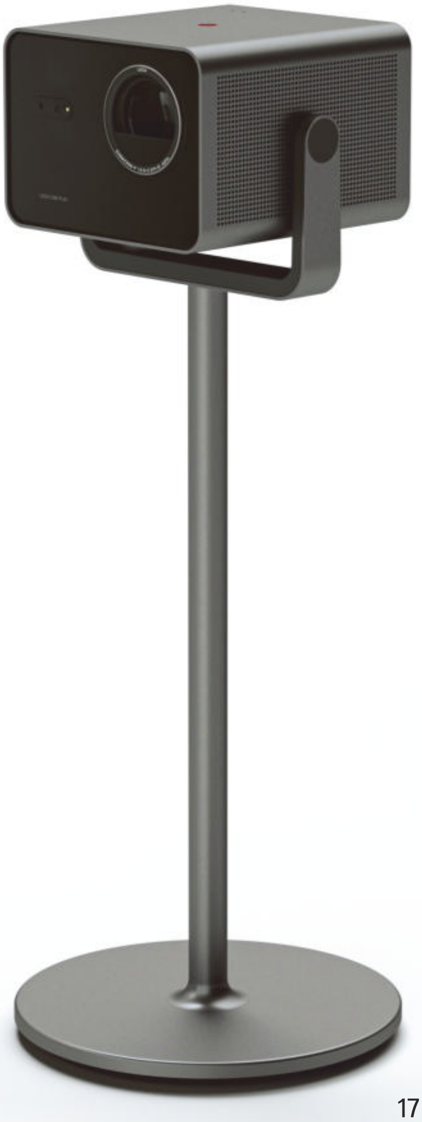
In a nutshell, we can summarise results here by saying we've not seen a better mini projector. Improved images from full-size projectors at higher prices, perhaps, or more effortless cinematic images notably when given the inherent stability of native 4K, rather than the pixel-flipping DLP employed here. But from a versatile easy-to-position mini projector, this was an unusually powerful image.

This means you'll be able to watch daytime TV or kids' shows or even movies during the day with anything short of direct sunlight on the screen; the shadows will wash out, but it's watchable. Then as the daylight lowers, the full effect of the lumens brings increasing contrast, brighter colours, and real light and shade, especially with HDR material.

And with impressive sharpness. The 'focus' button on the remote brings up a test screen of radial lines, letters and numbers; the autofocus does an impeccable job, and you can still manually tweak this to even greater perfection.

The sharpness is fully edge-to-edge, and the focus level is impeccable. This is far better, far crisper than we expect from a mini projector, and it is surely the effect of Leica's high-quality glass in action.

Can good glass also improve brightness? Of course it can: polymer lenses are less transparent; glass is clearer, and better at controlling colour dispersion. The difference is clearly visible. The opening credit text for Luc Besson's 'Anna' on Netflix looked almost as crisp as it would on a TV. The detail and texture were simply excellent, and even the rapid pans in



LEICA
SUMMICRON-P 1:2.0-2.3/9-15 ASPH.
LEICA CINE PLAY

the opening sequences of this film were smoothly delivered.

The Leica's available picture modes vary according to the material. With non-HDR content there are good 'Cinema Day' and 'Cinema Night' options (the former was brighter even than 'Dynamic' for day-time viewing), there's also 'Filmmaker', 'Sports', and 'Standard'; this last is indicated in some places to be an energy-saving mode. 'Dolby Vision Custom' mode allows you to tweak Dolby Vision content to your preference.

Movies could play thrillingly on the big screen: this Leica did a lovely job of *Red Sparrow*'s deliberately muted Cold War colour palette, and that proved a literal contrast with the bright plant greens, orange fireballs and mega-motion pans delivered impressively in *The Fall Guy* (that's the 2024 Netflix film, not the old 1980s' Lee Majors series).

We ran some of the *Chef's Table* noodle Netflix series, relishing the basil greens and chopped tomato reds, while rich Mediterranean facial skin tones were kept just the right side of over-browning, faces wonderfully lined and pored in their details.

> "Based on a Hisense model, it has been largely re-engineered, gaining a notable advantage (and much of the higher price) from its lens quality. Leica is famed for the purity of its lenses..."

Ultimate image quality came from a cabled HDMI connection to a good Blu-ray player or an AppleTV 4K; for one thing the Apple media player can be set to deliver material at its native frame rate, while the VIDAA interface here has its output locked to 60Hz, so it shows 50Hz material at 60Hz: "in our opinion without any noticeable difference" said Leica Germany when we queried this, though we could occasionally see conversion judder when watching Australian broadcast services which stream at 50fps. Note it's the VIDAA interface locked to 60Hz, not the projector, which can play any frame rate from an external input. And there are motion settings available here on the Cine Play 1, often omitted on mini projectors.

Sound from the built-in 10W speakers is adequate, even good for a mini projector; it's quite full, not weedy, and there are several 'sound modes'. But the main problem, as always with sound systems built into front projectors, is that the sound is coming from the wrong place — the projector, not the screen. Happily there are three good cabled options for running sound cables out of the projector (HDMI ARC, optical and analogue), as well as wireless Bluetooth.

The remote control is great, if not quite as lovely as the tactile ridges of the one with Leica's larger projector. It's sleek, nice to hold, and uses both IR and Bluetooth; it can also accept voice instructions via an internal microphone.

Verdict

The Cine Play 1 is highly competitive both at its own level and against the unit on which it is based. It's a shame its VIDAA interface can't stream at 25/50fps for Australian programming, because otherwise the projector itself is a stunner in every way. You get the Leica cachet, the effect of Leica's glass on sharpness and light levels, the beautiful casing: it's well worth the extra over the Hisense on which it was based. This second shining Leica — smaller, more versatile, and more competitively priced — is a brilliant, easy-to-use and significantly-superior smart mini projector.

LEICA CINE PLAY 1
4K MINI PROJECTOR

- Brilliantly sharp and bright for a mini projector
- Leica style and accessories
- Smart set-up and streaming
- Price offers surprising value

- VIDAA (not the projector) locked to 60Hz output
- 7plus/Foxtel apps not on VIDAA

Price: $5990 Floor stand: $790

Projection type: DLP

Resolution: 3840 x 2160 via XPR pixel-shifting

Projection size: 65 to 300 inches

Light source: Triple RGB laser

Throw ratio: 0.9 to 1.5

Output: "up to 3000 lumens (Ultra Mode)"

HDR modes: HDR10+, Dolby Vision / HLG

Gaming mode: Yes (latency <12 ms for 1080p@120Hz)

Inputs: VIDAA internal interface, 2 x HDMI 2.1, 2 x USB 3.0, Ethernet, Wi-Fi, AirPlay, Bluetooth (SBC, AAC)

Outputs: HDMI eARC, optical digital audio, minijack analogue audio, Bluetooth (no codecs stated)

Audio: 2.0 channels, 2 x 10W

Dimensions (projector only, wdh): 261 x 229 x 242mm

Weight (projector only): 6.7kg

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breaking dawn
FROZEN
RATATOUILLE
DESPICABLE ME
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KALEIDESCAPE

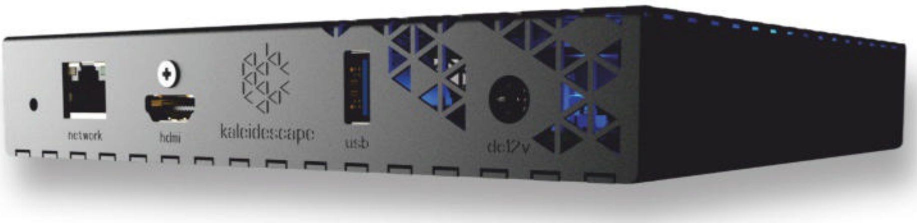
MOVIE PLATFORM & PLAYERS

The longstanding premium movie platform Kaleidescape is now officially available in Australia, and it comes with its own movie store. How does Kaleidescape work, and what does it deliver?

Californian-based Kaleidescape is a unique company with a unique offering: its players, servers and networking provide an alternative to watching movies either via the usual streaming services, or on disc. And further, it offers the ability to distribute its high-quality video and audio across multiple rooms in a home.

It does so in style. It offers a beautiful interface on screens both large and small. And in an age where streaming services compress movies in ways we barely understand in order to squeeze them down unreliable pipes to your home, Kaleidescape accesses the company's own dedicated movie collection, downloads them in advance to a Kaleidescape server, then plays them in full quality from cached content: no bottlenecks, no buffering, guaranteed.

How full is full quality? Kaleidescape notes that its video bit-rates can be 10× higher than typical streamer rates, promising an end to encoding artifacts such as softness, noise, and banding. Meanwhile its audio bit-rates also promise to be 10× higher than typical streamer audio rates, including lossless Dolby Atmos and DTS:X, hence claiming to "dramatically elevate your processor, amplifiers, speakers, and



treatments". This all corresponds to the quality you would, ideally, expect from the best disc version available — but here you get all the convenience of downloadable content and file-based replay.

Kaleidescape also adds cue codes to its movies, annotating such things as end credits and intermission cues, as well as technical data such as screen size and aspect ratio, all of which can be read by its players and used within smart-home automation to trigger correct screen masking when the movie starts, say, or even perhaps bringing up the room lights automatically at the end of the movie.

Arriving in Oz

So it's clever stuff, and high-quality stuff. Perhaps unsurprisingly, it doesn't come cheap, though it will be more easily considered and absorbed within the overall budget of a dedicated home cinema installation, a new build or a renovation. And it is in such environments that we frequently find Kaleidescape gear in residence. The company has been making its movie servers for more than 20 years, and they've been appearing in cinema projects gracing the pages of *Sound+Image* ever since.

But oddly it has never been 'officially' available in Australia. Now it is, with its own Australian movie store, and a new official distributor here, Audio Active.

"Our Australian Kaleidescape store allows us to sell our Strato players and Terra Prime servers in Australia," the US-based company tells us. So let's take a closer look at those components.

Terra Prime

It sounds like a Transformer, but the Terra Prime is Kaleidescape's movie server, equipped with storage in a variety of different capacities, with a choice of traditional hard-drives or solid-state storage (which soups things up nicely). You can also gang up additional servers to multiply your storage options. Our team got to play with a Terra Prime 8TB SSD Movie Server, which costs $5899 in the new Australian price listings.

You may want more storage than that. In Kaleidescape's specifications, 8TB of storage is marked as sufficient for 125 movies — a good collection, perhaps, but serious movie lovers will be wanting more. The current largest servers available to Australia are a 96TB HDD Terra Prime priced at $48,999, room for 1500 movies, or a 123TB SSD version at, gosh, $135,999. In defence of the pricing, the drives supplied in Kaleidescape's servers are enterprise grade.

And the good news is that you'll usually need only one Terra Prime, even for an extensive home. One server can feed a whole home of players: from its SSD servers Kaleidescape guarantees 25 concurrent playbacks of movies at the same time! Control is available using an infrared remote or Kaleidescape's own mobile app, in addition to possible control via a home automation system, be it Crestron, Control4, Savant or others. So your main point of interaction will likely be with one of the company's Strato players.

Strato C 4K player

Strato players come in three varieties: we played with the middle Strato 'C', which delivers 4K movies extremely well, but doesn't deliver Dolby Vision high dynamic range (Kaleidescape's store doesn't carry any HDR10+ content). The higher Strato 'V' does Dolby Vision, so may be preferable for those planning to use a Strato with a TV.

The other difference is storage: the Strato C has no internal storage, so must be used in conjunction with a Terra Prime server. But the Strato V (and also the lower 2K-only Strato 'M') has 960GB of internal storage (480GB in the 'M'), which we calculate to be enough room to store perhaps 15 movies. It can therefore operate independently from a server, and might be something on which you could store a few movies and then take off to a holiday home.

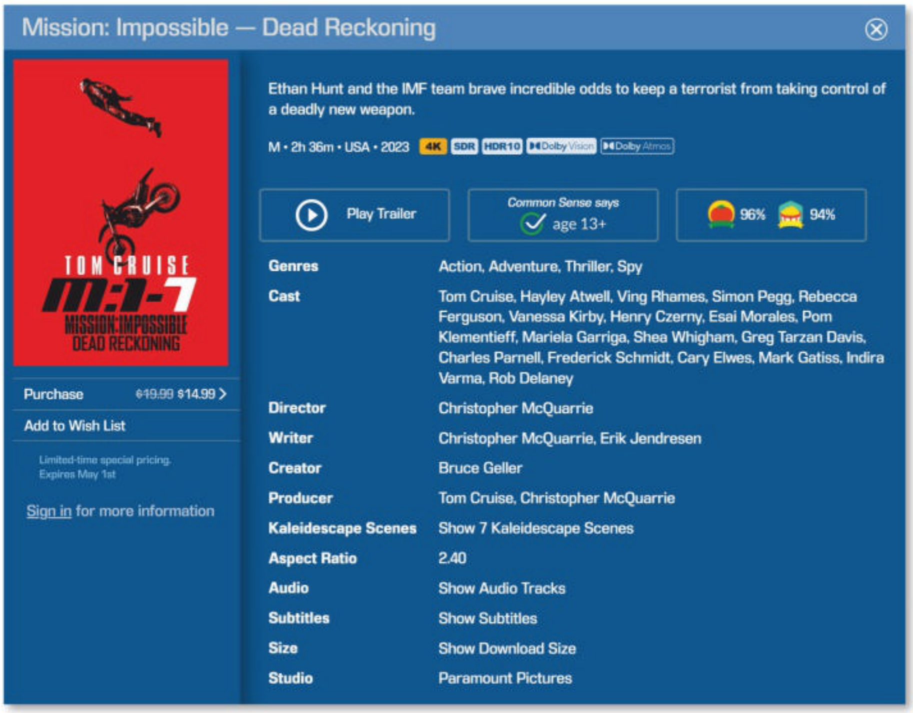
Whatever combination you choose, Kaleidescape components are very well-crafted, even though they will likely end up tucked away in a rack somewhere. Sleek aluminium casings bring confidence in build quality and longevity.

The Kaleidescape Remote bundled with the Strato C movie player proved responsive, with satisfyingly clicky buttons for operating the user interface, if not backlighting for the buttons. There's also

> "Kaleidescape's appearance in Australian home cinema installations for more than 20 years proves that the experts rate it for reliability as well as quality..."

Dune
A new duke takes over a valuable planet amid political intrigue, while his son begins a journey to fulfil an ancient prophecy
kaleidescape
kaleidescape
kaleidescape

RIGHT: two Strato C 4K players atop a Terra Prime server: one server can feed up to 25 players around the home at the same time.



Mission: Impossible — Dead Reckoning

Ethan Hunt and the IMF team brave incredible odds to keep a terrorist from taking control of a deadly new weapon.

M • 2h 36m • USA • 2023

Purchase ~~$19.99~~ $14.99 >

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Expires May 1st

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Genres	Action, Adventure, Thriller, Spy
Cast	Tom Cruise, Hayley Atwell, Ving Rhames, Simon Pegg, Rebecca Ferguson, Vanessa Kirby, Henry Czerny, Esai Morales, Pom Klementieff, Mariela Garriga, Shea Whigham, Greg Tarzan Davis, Charles Parnell, Frederick Schmidt, Cary Elwes, Mark Gatiss, Indira Varma, Rob Delaney
Director	Christopher McQuarrie
Writer	Christopher McQuarrie, Erik Jendresen
Creator	Bruce Geller
Producer	Tom Cruise, Christopher McQuarrie
Kaleidescape Scenes	Show 7 Kaleidescape Scenes
Aspect Ratio	2.40
Audio	Show Audio Tracks
Subtitles	Show Subtitles
Size	Show Download Size
Studio	Paramount Pictures

LEFT: Screenshot from the new Australian Kaleidescape movie store, showing details for the penultimate *Mission: Impossible* movie in 4K, with Dolby Vision and Atmos.

a neat colourful kids' remote control also available, with automatic barriers then being invoked for adult content.

Set-up and selection

We found set-up to be brilliantly simple and intuitive. There is a robust web interface to adjust settings on the Kaleidescape: daunting at first, but intuitive. You can tweak video and audio output settings, such as frame rate and sound format, and it's incredibly useful that these settings can be adjusted remotely.

Meanwhile the star of Kaleidescape's presentation — what sells the system to many users — is the on-screen interface, always a premium experience, and much copied by later comers to movie serving. It's the 'covers' view that everyone loves: a large (variable) grid with poster thumbnails of your movies. Hovering over a film for a few seconds will shuffle the order to bring closely-related content into view. For example, hovering over *Dune Part 2* on our unit brought up *Blade Runner 2049* and *Dune Part One* — both sci-fi movies directed by Denis Villeneuve and, in the case of *Dune*, part of the same franchise.

The easiest way to play content is to purchase it from the Kaleidescape movie store. This is country-specific, which as with other streaming services can be both a blessing and a curse, potentially gifting more local content, but also subject to licensing agreements. Our testers in the UK last year found a big hole for Disney and Universal NBC content in particular — but since then Universal has been added, so it is an evolving process. Now Australia has its own store, the previous option of VPNing to the larger US store will be discouraged.

So how does Australian access compare? "For Australia, we launched with over 3400 titles from 4 major studios, with more to come," Kaleidescape HQ tells us. "Today, 20% of those titles (over 750) are in 4K quality. As more studios are added to the store, the catalogue will continue to grow."

That figure of "over 750" 4K movies is for now a little restricted compared with over 2400 4K titles currently available to US users. The four studios currently signed up for Australia are MGM, NBC/Universal, Paramount Pictures and Warner Bros-Discovery, with prices from $9.99 for 2K movies, $14.99 for 4K movies, rising to $34.99 for some new movies (e.g. *Dune pt II* in Dolby Vision), and one outlier (*Companion*) at $54.99. You can look for yourself to get the latest: you should be able to browse the Australian store for yourself via this quick link: ***tinyurl.com/kstoreaus***

If prices for movies seem high compared with conventional streaming, remember you are getting lossless quality up to 4K, so these should perhaps be compared with 4K Blu-ray disc prices, which often aren't cheap either, next to, say, movies purchased on AppleTV, let alone watched as part of a Netflix package. It's all part of Kaleidescape's premium nature. Some offerings even arrive while still screening in cinemas (e.g. *Black Bag* while we were looking), so you might expect premium pricing in those instances.

Besides, the experience tends to make you forget the pricing. It takes roughly 10

> "Where streaming services compress movies to squeeze them down unreliable pipes to your home, Kaleidescape downloads them in advance to a server, no bottlenecks, no buffering, guaranteed."

RACK 'EM UP: Any number of Strato movie players can be grouped into a network, with up to four servers per system.

kaleidescape
kaleidescape
kaleidescape

kaleidescape
kaleidescape

minutes to download a film, depending on your network speed, and then your cover appears on the interface, ready to play. And from the first frames of playback, it was clear that the Kaleidescape's delivery is head-and-shoulders above the quality of the same movie delivered via an Apple TV 4K. We played *Mad Max: Fury Road* three ways: on 4K Blu-ray disc, on Apple TV (streamed from Apple's own 'iTunes' store), and on Kaleidescape. While the Apple TV version initially didn't look bad, after switching between the three sources it was clearly the least visually appealing version of the three options.

The Kaleidescape Stratos C delivered a picture that was clear, detailed and vibrant, noticeably sharper and more impactful than that of the Apple TV. The exaggerated colours of George Miller's action epic were delivered with a richer and bolder flair via the Kaleidescape player, while subjects on screen were more sharply outlined while remaining natural, giving them a solid, three-dimensional effect.

The disc-player's Dolby Vision advantage was more notable on *Dune Part 2*, the spice sands of Arrakis a touch better realised with enhanced depth and slightly richer colours. But these differences would presumably be mitigated by upgrading to the Dolby Vision-capable Strato V player.

Crucially there were zero issues regarding latency or buffering at any point during our time with the Kaleidescape server and player system.

Sound format support is full, including lossless Dolby Atmos and the rarer DTS:X. We note the Strato C passes through lossless audio (the Strato V can decode it as well), but it handed off just fine to our reference AV receiver, while its performance with immersive formats was again a clear step up over the Apple TV 4K soundtrack, with a richer and more expressive sonic character. The revving engines, booming drums and sounds of the iconic growling guitar flame-thrower in *Fury Road* were all delivered with greater slam and higher detail from the Kaleidescape, the sonic performance of which was broadly indistinguishable from the sound coming off our discs.

One final question: can you load all your existing downloaded movie files onto a Kaleidescape server to be viewed and played from there? No, you can't. Kaleidescape's early success (its first movie server was back in 2003) was based around treating the film companies with respect, and files from dubious sources were never part of its ecosystem. But what if you already own a film on disc? You paid for that legitimately already — can you use that in the system?

Remarkably yes, although sadly only via legacy Kaleidescape products. The company's former Disc Vault products can be grouped with a Strato C/Terra system and will be able to play DVD discs stored in the vault. But not Blu-rays. There is a 'disc-to-digital' programme: if you 'register' Blu-rays or DVDs by connecting an approved USB Blu-ray drive to the USB socket of a Strato, you may receive an offer to get a digital version at a special price. All a little complicated, and likely leaves an existing movie collection requiring an entirely different playback system.

Verdict

It's hard to judge the Kaleidescape comparatively, because there's really nothing else like it! Kaleidescape has a strong record as the go-to high-end domestic movie serving system, and its appearance in Australian home cinema installations for more than 20 years proves that the experts rate it for reliability as well as quality. It certainly delivers superior movie quality to conventional streaming, while equalling ultimate disc playback quality, but adding the convenience of not having to mess about with discs.

Of course, you have to pay considerably more than even a premium 4K Blu-ray player, and you may still need to buy a Blu-ray player anyway, to play discs you already own. Otherwise, for those with the funds for a superior system, there's very little to prevent our full recommendation of Kaleidescape to those wishing to install a chunky central Terra Prime server and multiple Strato Vs, Cs and Ms around your home. In fact we'll be extremely jealous.

ABOVE: When a Strato C or V is grouped with a Terra Prime server, its internal storage is disabled (in favour of the more scalable server storage), and the full Kaleidescape experience is enabled.

KALEIDESCAPE PLAYERS & SERVERS

- Server movies at 4K disc quality
- Lossless audio including Atmos
- Great interface and control
- Multiroom works seamlessly

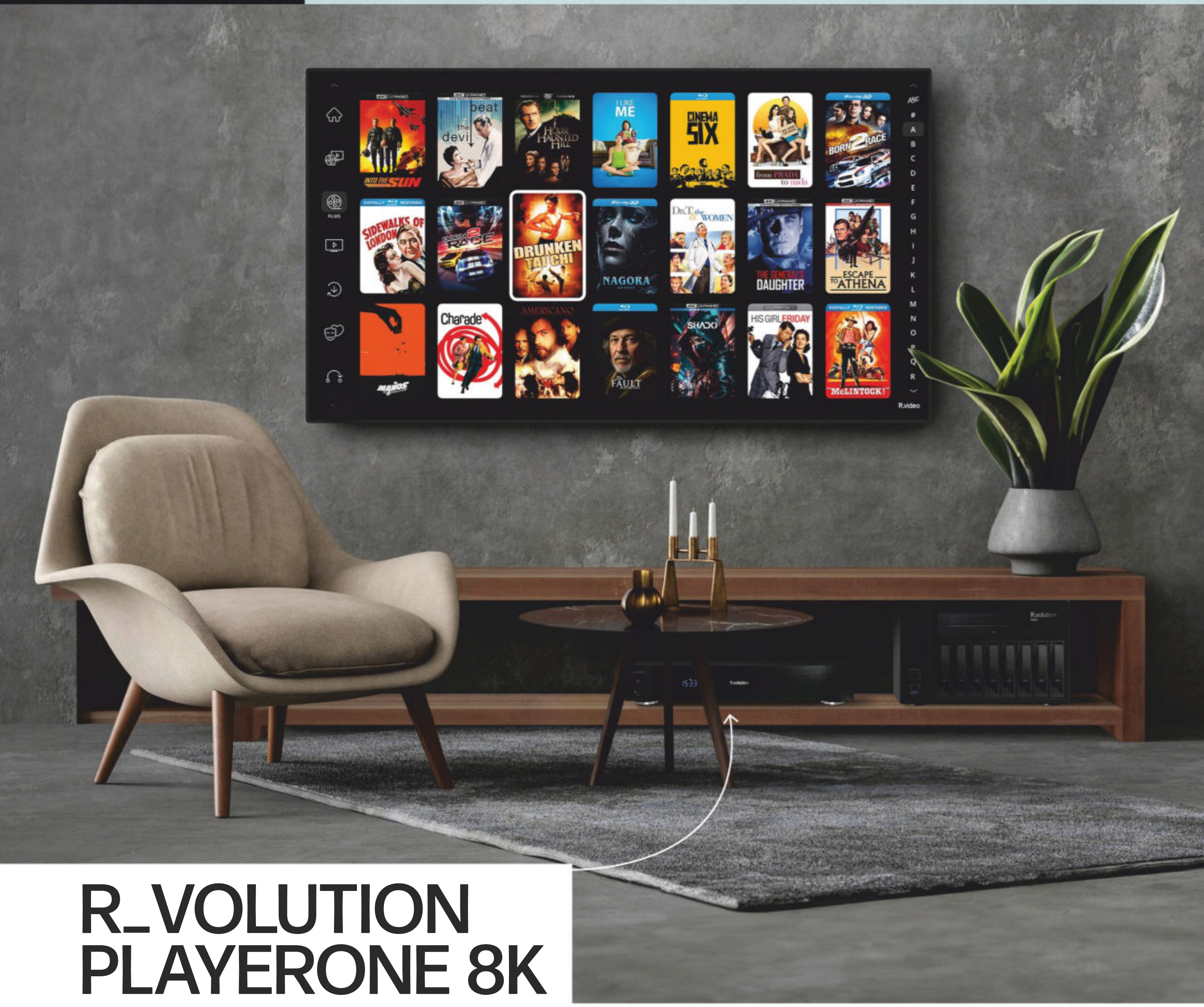
- Limited to Australian movie store
- Relatively high pricing

Strato V player $7499
Strato C player $5899
Strato M player $3999

Terra Prime servers
HDD: 12TB $10,999; 24TB $19,999; 48TB $29,499; 96TB $48,999
SSD: 8TB $17,999; 31TB $45,299; 123TB $135,999

Strato C dimensions: 20 x 3.9 x 25cm (hwd)
Strato C weight: 1.9kg
Terra Prime 8TB SSD dimensions (whd): 20 x 3.9 x 36cm
Terra Prime 8TB SSD weight: 3kg

Contact: Audio Active
Telephone: 03 9699 8900
Web: audioactive.com.au


INTO THE SUN
beat the devil
HOUSE ON HAUNTED HILL
I LIKE ME
CINEMA SIX
from PRADA to nada
BORN 2 RACE
SIDEWALKS OF LONDON
BORN 2 RACE
DRUNKEN TAI CHI
NAGORA
Dr. T & the WOMEN
THE GENERAL'S DAUGHTER
ESCAPE TO ATHENA
Charade
AMERICANO
FAULT
SHADO
HIS GIRL FRIDAY
McLINTOCK!
R_video

R_VOLUTION PLAYERONE 8K

UNIVERSAL MEDIA PLAYER

Load in your movie collection and let R_volution index and identify it, then deliver it to your television and/or sound system at the best possible video and audio quality. And that's just the start…

Where to start when describing the R_volution PlayerOne 8K! It is, primarily, a media player, with an internal hard drive (bring your own, up to 32TB), onto which you can load media content of any kind, but most likely movies, and then you can connect the player to your TV and play them back.

But it can also play from external storage, connected or networked, and it further provides a media server for other players in the rest of the home. And another of the selling points of the PlayerOne 8K is the quality at which it can play back those movies — all the way to 8K at 60 frames per second if you have any such esoteric material, but more likely 4K UHD Blu-ray rips, 2K Blu-ray rips, DVD rips or any other files such as .mkv and .mp4 which may have arrived from elsewhere — this non-judgmental ability to play all your files separates it from more 'tied' and authorised systems like Kaleidescape.

It handles High Dynamic Range of every flavour up to HDR10+ and Dolby Vision, and it delivers all audio formats up to Dolby Atmos and DTS:X.

And it aims to serve all this up with a friendly interface that presents your movies as an attractive screen of movie covers, complete with surges of movie music as you browse. So that's the R_volution PlayerOne 8K in a nutshell.

Build & facilities

Don't let the '8K' tag confuse you or put you off. There is/was a PlayerOne 4K, but the price differential was so minimal that now everyone gets the 8K. Think of this as futureproofing, since there's hardly any 8K material for you to see just yet, while

8K televisions seem to be fading from the market as well, so it may never happen. On the whole, we suspect the vast majority of users will be playing a maximum of 4K files from the PlayerOne into a 4K TV.

As noted, the PlayerOne has every facility to do this. It supports direct playback of full 4K Ultra HD Blu-ray disc images (BDMV and ISO) with menus in Dolby Vision (MEL and FEL), as well as various file formats including .mkv, mp4, .ts, and .m2ts. All popular Dolby Vision profiles (P4, P5, P7 MEL and FEL, P8) are fully supported here.

But it goes still further, notably with 'AI' image enhancement of two different types. There's AI-PQ, or Artificial Intelligence Picture Quality, a video processing technology said to improve local contrast and colour dynamically "based on images" (presumably a reference image database). The second technology, AI-SR or Artificial Intelligence Super-Resolution, is specifically for upscaling from full-HD to 4K or 8K, optimising clarity, detail and edge sharpness while reducing any video noise.

Some of this would seem to duplicate the onboard Dolby Vision VS10 video processing engine here, which both upscales and downscales any type of content (SDR, HDR, Dolby Vision) to any other type of video output signal (SDR, HDR, Dolby Vision). This should deliver some of the Player's processing merits even to older TVs that do not support Dolby Vision.

In addition to playing, it is also sharing its drive contents with your network for potential playback in other rooms on media players by R_v olution (which offers a mini player for such extended use).

There's also one further enormous bonus which seems rather under-emphasised in the literature, but which potentially extends the PlayerOne's abilities extravagantly and usefully. But we'll come to this after our main bout of movies and more.

Bring your own hard drive, up to 32TB, and the R_video software will ID and label your files.

Set-up and viewing sessions

The PlayerOne will be no stranger if you've ever seen or used a Zappiti video player: this is very much the same. New skin, new abilities, some new ways of doing things, but the connection between the brands is very clear, right down to an absolutely identical remote control (see overleaf).

The links between Zappiti (which shut down in 2023) and R_volution (and also Reavon) come from common staff members and control: Jacques Bensahkoun, Christophe Cherel, and the Paris company Groupe Archisoft.

As with the former Zappiti players, the PlayerOne 8K is certainly well-built and elegant (French, you know), a full-width video component in a solid metal casing with a chunky fold-down fascia revealing the internal hard drive bay, plus rear USB slots for external storage, and networking for playing from NAS storage. All of this content can then be combined under the 'R_video' interface, which creates one of those classic walls of movie posters to page your way around with the remote control.

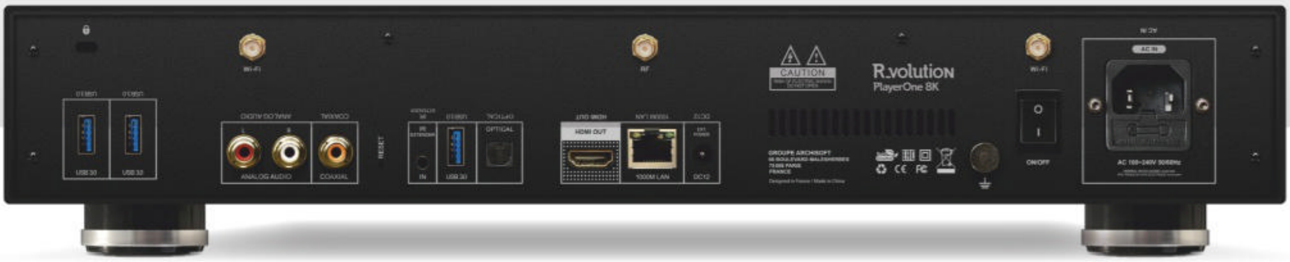
Distributor Synergy kindly included a hard drive inside our review unit pre-populated with a good few 4K Blu-ray rips, and we also knew (from an EISA briefing on this player last year) that we would also be able to pull out the drive from our own Zappiti 4K player and simply plug it into the PlayerOne. As soon as we did this, sure enough, off it went, indexing the great many titles on that longstanding drive.

> "Again the trick here is delivering at full disc quality, no compression, all the detail, all the luminance information: it's simply better than streaming movies..."

Once things are indexed and automatically 'identified' using R_volution's online resources, you can also make changes and additions using the PlayerOne's menus. Highlight a title and click the contextual pop-up button (three horizontal lines) and you are invited to download subtitles, to change the cover image and background picture from selections offered, or to make any number of other changes.

Film series (or 'sagas' as R_volution calls them) are automatically grouped and sorted by release date; you can also make your own groups. TV series need careful naming in a manner described in the online knowledge

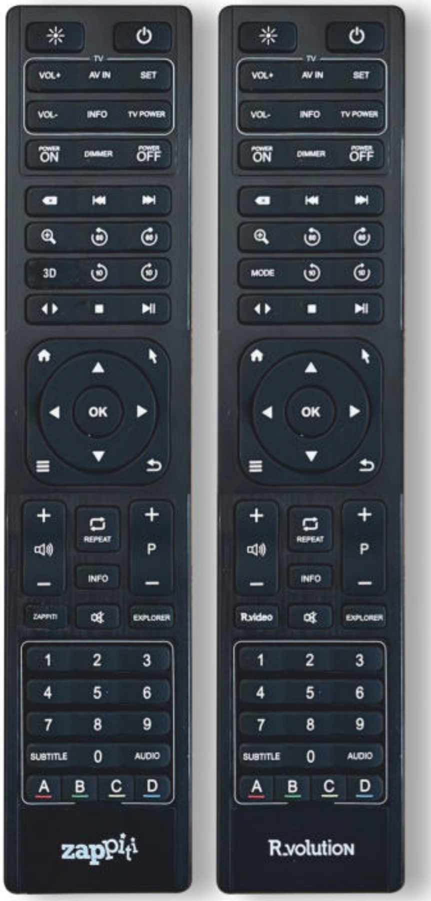
PlayerOne 8K
POWER
R_volution



base, but once you do so they will then folder themselves up neatly.

Note that the 'R_video' interface will automatically index and identify only the movies you put in a folder on your drive called 'Movies', and the TV shows you put into a folder called 'Series'. This is a sensible precaution against having loads of loose files loaded into the interface, and also minimises the amount of corrective identification you'll need to do. Having used a good many such systems in the past, we find there are inevitably titles which are not identified, or are misidentified, and one of the tests of a system like this is how easily you can override the automatic identification and tell the system what you know to be true, not what it thinks might be true. R_volution proved better than most at this, especially in its use of TMDB, The Movie DataBase. If R_volution can't ID your movie, you can just search for it in TMDB, look at the four or five-digit number used in the URL for that page, force 'Identify' on the remote's ever useful pop-up button, and enter the TMDB number — that's all the system needs to get the rest of the information: the cover, even a soundtrack excerpt to play when you roll over the movie poster. It's all far faster than getting into manual text entry, as required by many other such systems.

BELOW: Connections betwen R_volution and the former Zappiti are pretty obvious…



While this worked for several movie discs we needed to identify, the TMDB numbers stubbornly refused to work for any music DVDs, even though they were listed on TMDB. But we found that the manual does say that "R_video doesn't recognize home movies, vacation movies" (of course!) "*or music videos*". And not even music discs that have a TMDB number: for Midnight Oil, Boomtown Rats, Roger Waters, neither names nor TMDB numbers did the trick, while *Concert for Bangladesh* shares the same TMDB code as *Karishma – The Miracles of Destiny*, the 2003 Led Zeppelin DVD the same as a UK TV series *Great Ormond Street*, and so on. So it's nice when it works, but collectors of music discs are in for a disappointment.

There is a workaround. If you put all these videos in a folder called 'Personal Videos', then R_video will not try to ID them, and you can then use the company's R_video software for Mac or PC, which runs very similarly to the software in the machine, via which you can change the posters and enter the disc info manually. It's tedious (and our Mac couldn't always see the whole collection on the PlayerOne) but a perfect catalogue can thereby be achieved.

As for playback, just sit back and relax, set your TV to Filmmaker mode (if it doesn't automatically enter an HDR mode) and let the R_volution do the delivery. Of course, the ultimate quality is set by your source files, and we struggled to find any video format the PlayerOne 8K couldn't handle, other than 3D, which has disappeared from the latest chipsets, so can't be played here. But the results with full Blu-ray and 4K UHD Blu-ray disc images on the PlayerOne 8K were simply impeccable.

Again the trick here is delivering at full disc quality, no compression, all the detail, all the luminance information: it's simply better than streaming movies. The imaging was almost distractingly crisp during the night scenes of Sam Mendes' *1917*, where Écoust-Saint-Mein cobblestones were each individually traced and textured during the amazing searchlight scene where the ruined town is reduced to a series of two-dimensional staging flats and backdrops.

The film's HDR10+ dynamic range also served this sequence, graduating the light and shade as the soldier runs between areas of total black and frighteningly-exposed flare-lit and flame-lit town walls. There is intelligent dynamic tone mapping going on here in real time, which may not improve on the processing available in the latest high-level TVs but will be extremely useful when addressing the lesser brightness of projectors, minimising crushing in the dark areas, while holding up the highest possible brightness.

Add in the Dolby Atmos sound here, the cracks and flames in audio FX over the ominous Thomas Newman soundtrack for *1917*, and the R_volution player fully served both image and sound for this extraordi-

> "The Android TV implementation here seems to frequency follow, playing at 50Hz when streaming Australian catch-up services, removing any perils of 50-to-60-fps pull-down judder)."

nary piece of movie-making to be enjoyed at its absolute best.

Can AI tweaks make it better? Almost impossible to tell, as invoking the AI video processing requires exiting a movie, going to the Set-up menus, changing the setting, then going all the way back to the movie again. Without a more direct A-B comparison we couldn't be sure of any differences or improvement.

Everything else is clear enough: subtitles and soundtrack options are easy to access, up to full flavour Atmos and DTS:X: we had the PlayerOne 8K attached to a Yamaha AV receiver so enjoyed 5.1.2 playback where available; as with the images, audio was impeccably delivered.

While it eschews music disc indexing, the PlayerOne is a dab hand at music playback, including high-res audio files as PCM or DSD in all popular formats (ISO, DFF, DSF), including multichannel files. While these can play via HDMI, there are separate audio outputs available on RCA analogue, optical and coaxial digital, so you might run from these direct to a stereo amplifier in order to listen without the need for a screen to be turned on.

We should note that you don't have to use the 'R_video' interface with its cover images and soundtracks and stuff. As on Zappiti players there is a simpler file browsing option. Even with all the upgraded processing power here, we found R_video a little slow to use, the software slow to load, often non-reactive while pausing and thinking, sometimes listing only a handful of the films on the hard drive, or doing something else odd.

But the browsing option is quicker, and more reliably zips around your drives to find what you want. (With our Zappiti player we've always ended up using the browser over the snazzy interface, and we suspect that if we were to live permanently with this R_volution player, we'd be doing the same here.)

Yet there are functionalities that make R_video attractive to use beyond simply the wall of movie posters: the ability to combine lists from multiple sources, the ability to mark favourite movies and even favourite scenes to be kept in the R_video menus, and to use the digit buttons on the remote control to 'jump' through long menu lists (press 6 for 60%, etc.).

Android TV

That enormous bonus of which we spoke earlier; here it is. While the PlayerOne 8K as a whole runs on Linux, the main interface offers a little Android head logo labelled 'Apps', and the first of the apps there listed is Android TV — and this is a complete implementation of Android TV 11.

So open this up and you can load up on entertainment apps and use the PlayerOne like a smart TV. One small mismatch is that Android regularly asks for voice input, but the R_volution remote has no voice button.

We were delighted to see that the Android implementation here seems to frequency follow, playing at 50Hz when streaming Australian catch-up services (some such smart interfaces are locked to 60fps output, with the consequent peril of pull-down judder).

The PlayerOne itself, meanwhile, supports and follows all frame rates, including the 23.976Hz and 59.94Hz that some lesser players force up to integer 24fps and 60fps, again risking judder.

Can material streaming from Android also take advantage of the R_volution processing? We assume so, since the AI settings are in the overall set-up. So this might be the best upscaling of low-res streaming TV you could enjoy! We ended our time with the PlayerOne 8K watching the new *Masterchef* season streaming on 10Play, which was something we simply hadn't expected to be even possible here.

Verdict

Remembering you'll need to budget for a hard drive, the price of the PlayerOne 8K is pitched nicely for a high-quality video source component — significantly above the non-HDD streaming media boxes it aims to outperform, but well below the exclusive upper realms where the likes of Kaleidescape play. We reckon there is a slight 'enthusiast' element here: there's a lot for an average consumer to follow and potentially implement, especially with only a Quick Start Guide available (and where neither back nor front panels matched the actual product) plus a web-based knowledge centre to make things easier: there's no real full and detailed manual available.

But anyone who knows their HDR10 from their HDR10+ and their HDD from their NAS will find their way around to get their drive loaded with goodies, ready to play movies to their very best level.

R_VOLUTION PLAYERONE 8K

- High-quality video delivery...
- ...from HDD storage and connected media
- 'Wall of movies' navigation
- Android TV available
- R_video interface sometimes glitchy

Price: $1795 (+ HDD cost)

Processing: Amlogic S928X-K/J chipset; 2.0GHz ARM Cortex-A55 4-core CPU; 1.9GHz ARM A76 core; ARM Mali-G57 GPU, with NPU (Neural Processing Unit) hardware accelerator for AI

Operating system: Linux + Android 11.

Inputs: HDD bay (3.5-inch SATA), USB 2.0 (front panel), 3x USB 3.0, Ethernet, Wi-Fi, Android TV

Outputs: HDMI 2.1a (HDCP 2.2/2.3), minijack analogue audio, optical audio out, coaxial out, IR out

Dimensions (whd): 43 × 8 × 28.5cm (without carton)

Weight: 6kg

Contact: Synergy Audio Visual

Telephone: 03 9459 7474

Web: synergyaudio.com

STEWART FILMSCREEN PHANTOM HALR

HIGH AMBIENT LIGHT REJECTION PROJECTION SCREENS

Can projection work effectively in a room with ambient light? If the right screen is considered as part of the projection system, it can be done.

When choosing a projection screen, take care to consider carefully the environment in which it will be used. With the right screen, the difference can be night and day...

In our articles about home cinema we often emphasise that the projection screen is an essential part of any projection solution. During the design process, the entire imaging system needs to be optimised, with the projection screen a key part of this equation. The overall projection solution is a combination of the projector, the screen and the room itself: it should not be left as an afterthought.

For a conventional home cinema in a dedicated room, there can typically be very good to excellent light control over ambient light, enabling a screen with excellent uniformity to be used.

But in recent years there has been a move to bring bigscreen projection back into living areas which may involve higher levels of ambient light. What kind of solutions might you then be seeking? We asked this question of Paul Kutcher at Visual Fidelity, screen guru and supplier of Stewart Filmscreen to Australia.

Multiple layers to handle light

In a multi-purpose room with light walls and ceiling, conventional white screens will struggle because of direct light or ambient light falling upon the screen, lowering the on-screen contrast.

"In these instances, a grey or black screen will offer superior ambient light resistance, provided careful consideration is given to the optics of the projector/screen combination," advises Paul Kutcher.

But when there is substantial ambient light, you might turn to Stewart's Phantom HALR screen material, HALR standing for 'High Ambient Light Rejection'.

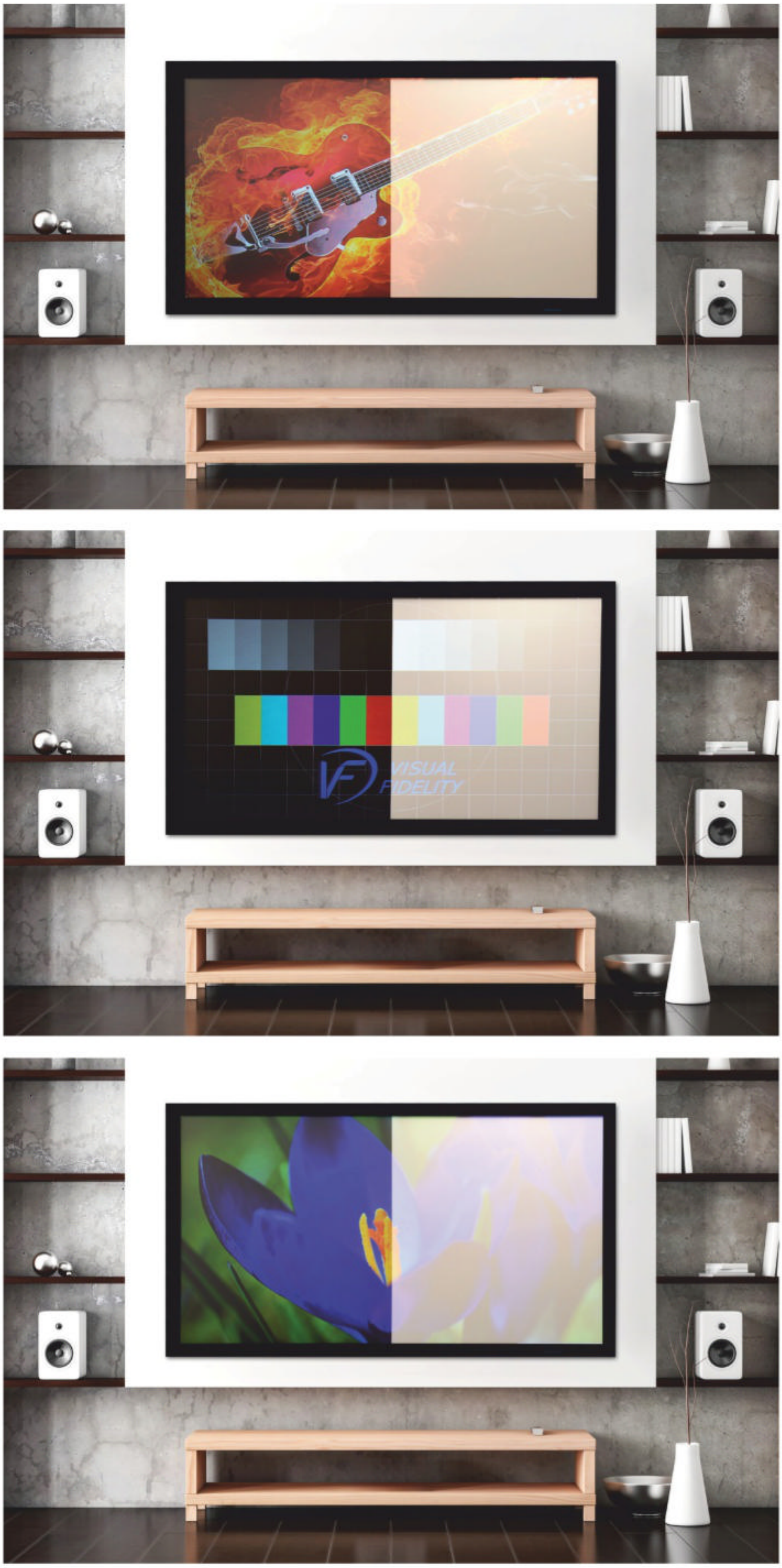
A few years ago Paul Kutcher mocked up a screen made of two different projection surfaces spliced together in the middle. On the left was Phantom HALR, while on the right was Stewart's premium matte white surface, SnoMatte 100. This is the material used as a de facto standard by most Hollywood studios, post-production houses and colour-timing facilities — the reference quality for imaging professionals seeking critical colour matching and image quality.

Yet when illuminated by the same projector under ambient light conditions, which image would you prefer to see in your home? Our main room image (left) is a mock-up, but the screen images shown on the right are photographs of the actual screen in use. As you can see, the left side is colour-rich with respectable blacks, while the right side is all washed out, in some cases barely visible. We'd all pick the screen surface on the left. Right?

"Stewart is a great believer in a 'horses for courses' approach," says Paul Kutcher. "It is all about selecting the most appropriate screen surface for the given space. So after more than 70 years in the business, Stewart today offers a wide range of surfaces to professionals, commercial and domestic customers, suitable for their equally wide range of applications.

"Phantom HALR is one of the latest solutions, solving the cinema-age-old issues of ambient light. And this is a clever trick, when you think about it. Projection screens are built to reflect the light from your projector back to your viewing position — but here we're asking the screen to keep reflecting that projector light while not reflecting the light from anywhere else."

Stewart's solution is the use of multiple screen layers, with differing properties. On the very front of a Phantom HALR screen is a two-way diffusion layer through which light passes to reach a second layer. That second layer has a highly reflective optical coating, so that the projector light then bounces back through the front diffusion layer to the viewing position. That's your movie image sorted, and in full quality; Stewart notes in particular that there can be colour shift occuring on other 'ALR' screens,



The three screens above were photographed in strong ambient daylight. The standard fabric on the right washes out, while the Phantom HALR screen section on the left retains contrast.

> "Phantom HALR is one of the latest solutions solving the cinema-age-old issues of ambient light. And this is a clever trick, when you think about it."

while Phantom HALR will calibrate out to Rec. 2020 or Rec. 709 without skewing the primary and secondary colours.

But for ambient light, the dual-layer design is able to reject light coming from angles other than the perpendicular. It gives double protection, indeed, since any ambient light that sneaks through the diffuser layer on the way in can be blocked, post-reflection, on the way back out. The result — clear from the images — is that a Phantom HALR projection screen can deliver a peak gain of 1.0 while achieving 82% ambient light rejection.

Flexibility and transparency

Other ambient light rejection screens are, of course, available; our magazines have recently praised various companies for offering them bundled with the new wave of ultra-short-throw and smart 'portable' projectors. But this is not the market for Stewart's Phantom HALR, says Kutcher.

"A Stewart ALR screen is going to cost far in excess of what one of those small portable projectors will cost, and as such is extremely unlikely to be sold as a solution with one of those units," he notes. "Besides, this screen type is not designed for short or ultra-short optics. Stewart surfaces are angular reflective: that is, they reflect light at an equal but opposite angle to the angle of projection. So they will provide optimum performance when the projector is ceiling-mounted at the minimum recommended throw distance from the screen, with the resultant reflected light being directed down towards the audience."

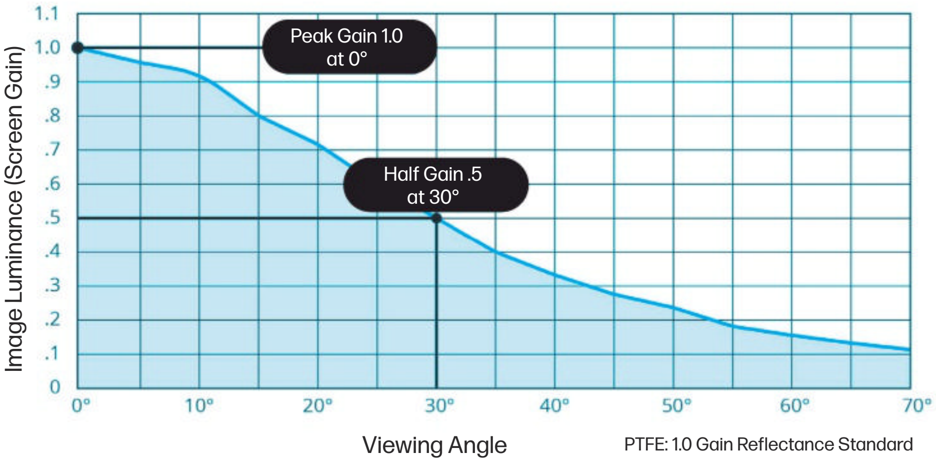
In comparison, he says, most ALR screens from other screen manufacturers employ optical lens elements, such as Fresnel lenses, to redirect projected light from ultra-short-throw projectors.

"As these types of screen are typically rigid or semi-rigid, they are size limited due to the nature of their manufacture," says Kutcher. "Stewart's Phantom HALR surfaces are not size limited — and they can also be perforated for acoustic transparency."

Acoustic transparency — perforation using Stewart's Microperf X^2 THX-Ultra or Cinemaperf — allows an LCR sound system to be mounted behind the screen, just one of Phantom HALR's major advantages. Another is that colour accuracy, delivering a daytime image with colour and contrast as rich as you'd hope to enjoy at night.

As noted, Phantom HALR is also a flexible fabric, where most examples of ALR surfaces can be used only on rigid and fixed frames. So Phantom HALR is available for Stewart's roller-screen models, allowing the screen to be hidden away when not in use — another gift to domestic order.

Stewart's Phantom HALR fabric has advantages of flexibility, size, transparency and ambient light rejection, but it does drop image luminance more rapidly as viewing angles rise.



As for that size, Stewart's experience in catering to the movie industry and commercial spaces like galleries and museums means it can deliver seamless Phantom HALR screens up to 27 metres by 12 metres! (If you're still thinking your 75-inch TV can rival projection systems, do the maths — that's a 1163-inch diagonal.)

Any limitations? Stewart specifies a minimum throw distance of 1.8 times the screen width to avoid hotspotting. And where SnoMatte 100 hardly drops a photon even for viewing angles of 60 or 70 degrees, as might be required in a large and wide auditorium, Phantom HALR drops more quickly to be 0.5 by the time you are 30 degrees off axis (see graph) — a direct *quid pro quo* for the ambient light rejection.

Conclusion

Projection need not be restricted to fully darkened rooms. Phantom HALR provides a powerful option for the home where a dedicated room is not available or desired. As an evolution of ALR screens it raises the ability to produce surfaces that effectively restrain ambient light from intruding on the image. The ultimate goal of an ALR screen is to give viewers brightness and picture quality that rivals or even surpasses what other display technologies can provide with the lights on or off. As UHD and High Dynamic Range (HDR) become more pervasive and 4K commonplace, with 8K on the roadmap, ALR screens like Phantom from Stewart Filmscreen will further enhance viewing quality on the big screen in rooms which can't be fully blocked out for light.
And as the images in the article show, business boardrooms and other commercial spaces can equally benefit from its high ambient light rejection.

Is it right for you? Stewart Filmscreen's distributor Visual Fidelity and its network of dealers can advise and quote on the options available. Then you can just sit back and enjoy your bigscreen entertainment — night and day.

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CHOOSE BETWEEN A ONE-BOX SYSTEM OR HI-FI SEPARATES...

It turns out we need to declare an inherent bias on this question, having found seven reasons to sway you one way, and less than a handful the other.

We like hi-fi. You might have gathered that. What that really means is that we love music and we want it to sound as good as it possibly can. That's why we like hi-fi, because good hi-fi does that. A hi-fi system is a music machine.

But what is a hi-fi system these days? Stereo speakers, an amplifier and a CD player or turntable were once the ingredients for every music system. Now you can do it all (and more) with a single wireless speaker. The best examples of portable Bluetooth speakers (and you'll find two of them in this issue) can make some remarkably good sounds, and have the merit of being affordable. But to conjure real 'hi-fi' moments you might consider a larger 'all-in-one' streaming music system for the home; some of these, like the Bowers & Wilkins Zeppelin Pro this issue, are the latest versions of established stars in the hi-fi firmament and can make *very* nice sounds. Some (though not the Zeppelin) have risen to prices which compete directly with traditional systems. And an all-in-one system offers some clear benefits.

Space is one thing — the best all-in-ones can get pretty large in their footprint, but they're still far less intrusive than a stack of hi-fi and a pair of speakers. Ease of use is another — nothing much to connect, everything under a single remote control (if you get a remote), or more likely app control from your phone. Portability, for sure — if you're taking music to the beach, a separates system would be most unwise.

An all-in-one system also simplifies decision-making greatly — one thing to buy, rather than a whole set of purchases with cables and other extras like an equipment rack and stands. Hence it's easy to see why all-in-ones have become very popular since their quality improved.

Still, you know, we have to say it — it's not quite the same. All-in-ones almost never achieve that true hi-fi reproduction where the music becomes real and you experience it, rather than merely listening. In our hearts, we know there are still many reasons why a stereo separates system makes so much more sense.

1. It sounds better

Let's kick things off with an easy one. You like music, right? So why not hear it sounding as good as it should? Ninety-nine times out of 100, that will mean a traditional separates system.

This is partly because the sum of carefully-chosen parts should deliver better (and thereby better-value) sound than a similarly-priced wireless speaker can muster. In separates you can select each box to be a master of its trade, rather than the jack-of-all-trades all-in-one system,

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where a weak link is likely somewhere in the chain. From stereo separation to stereo imaging, Class-D amplifiers to the limits of smaller boxes, the technical reasons are many, but the end result is the same: when it comes to sound quality, a stereo system is very hard for a one-box wireless speaker to match, let alone beat.

2. No outages

'Outage' is a 21st-century buzzword, and it happens to music streaming services. If you're listening to music on a wireless speaker, there's a fair chance you're out of luck in such circumstances. Or if one day you switch service, or have to cut back on paying for everything every month, your carefully-curated music library disappears.

Yes, you can play music stored locally, and yes Bluetooth doesn't require Wi-Fi, but a wireless speaker ultimately leaves most people, most of the time, at the mercy of The Cloud. Other than the odd scratch, there's very little ever to stop you playing a collection of CDs, vinyl and downloads...

3. Best of both worlds

Not that a 'traditional' hi-fi system can't use The Cloud too. You don't have to spend your life thumbing through a dusty record collection to find the next thing to play (though there's little in life we prefer to doing that). The hi-fi world has been in the 21st century as long everyone else (with notable exceptions), which means you can now add a state-of-the-art music streamer to your amp and speakers and have a whole world of digital music at your fingertips. If you're buying from scratch there are plenty of smart amps and components (such as the Marantz CD player in the next review) which have streaming built in, so a traditional source, amp and speakers can now do all the modern stuff too, often including whole-home multi-room music.

On the flip side, you definitely can't play a 12-inch vinyl record on a wireless speaker. Trust us, we're experts.

4. Upgrade paths

Not happy with your speakers? With separates you can buy a new pair, and quite possibly trade in your old ones. Time to add a turntable? Go for it. A separates system allows you to upgrade components over time, as and when you're able (financially or otherwise), as well as adding new features with new products.

Conversely, wireless speakers are, perhaps counterintuitively, more inclined to go 'out of date' quicker than a pair of passive speakers. Voice control, room correction, new software — all this tech can be great, but it can also leave your once shiny new purchase looking sad and a bit 'version one'. Just ask early Sonos customers.

5. It's not just a box

This idea of upgrading and fine-tuning your system brings us neatly on to our next point: a hi-fi system is a living, breathing, beautiful thing... figuratively speaking, anyway. You can feel a real connection to a system of components you have chosen, plugged together, positioned, perfected and sat back and enjoyed. A wireless speaker and your phone can be satisfyingly convenient, but noterhaps less conducive to feeling at one with your music collection.

It's much like the argument for physical media over digital. We love streaming music, but it's not the same. Think of a hi-fi system as the homemade sourdough to your TipTop sandwich loaf.

6. It can be artisanal local produce

Speaking of sourdough, one thing that can engender a closer connection to your hi-fi system is the level of craftsmanship that has gone into the products, many of which could be made by actual human hands in your home country.

Australia has many excellent local hi-fi companies creating products locally, some exporting to the world. Some use Chinese production for their lower-priced products — there's a lot to be said for economies of scale, and some very lovely and popular things come out of huge factories in China. But admiring the skill that goes into something made with obviously skilled hands is hard to beat. And we should enjoy that kind of thing while it's still available.

7. Physical music supports artists

As mentioned, a hi-fi system doesn't have to mean physical media but often does support CDs and vinyl (and digital downloads). And as things stand, if you want to support artists and bands making the music you love, buying physical media (or direct downloads e,g, BandCamp) is a better way of doing it than streaming. They get more money, almost no matter how you slice it. And if you're thinking of starting, or kick-starting, your vinyl collection, you'll want more than a wireless speaker (we think we mentioned that already).

And finally...

Hence our love for the separates hi-fi system. Although, as we touched on at the start, the definition of a hi-fi system has become increasingly blurred. In most ways that's a good thing, offering more people the opportunity to enjoy their music in more ways and in more places. Convenience does make things easier.

Active streaming speakers make a notably strong case for convenience in terms of sound quality; the performance from these high-end networked speakers can be so impressive (see under 'Capella').

But many of our other seven points still apply. We reckon there are a great many people who adore their music but may never have heard it at its best, through a high-quality system of any shape. If that's you, rush to a dealer — tell them you just want to listen! With music available today in so many ways, there's never been a better time to enjoy a brilliant, versatile, state-of-the-art hi-fi system in your main entertainment room — and you may want to keep a good portable speaker for when you head outdoors. Happy listening.

DENON DP-450USB

TURNTABLE WITH USB RECORDING

Sleek and black, nicely-priced, and loaded with neat features including very simple USB recording: Denon shows that after 100+ years it certainly hasn't lost its turntable-making chops.

Last year we reviewed Denon's new DP-3000NE turntable, a premium vinyl spinner utilising direct drive rather than belt drive, and fitted with Denon's own highly-regarded DP-103R cartridge: the pairing was so impressive that both the deck (at $4669) and the cartridge (at $749) ended up with their own recognition in our Sound+Image Awards.

But we have never examined the turntables further down Denon's range, until we happened upon them in one of the rooms at the recent Australian Hi-Fi Show in Sydney. There we met two of the company's turntables that are priced rather more affordably: the Denon DP-400, priced at $1199, and the DP-450USB, at $1399.

Both are belt-drive models, both have the advantage of a phono preamplifier built in, and both offer what is called semi-automatic operation. But the DP-450USB has an additional function — as its name suggests, it can record your vinyl to a digital file via its USB socket. We rather enjoy archiving vinyl in this way, so we suggested a review of that one. And so here we are, unboxing the glossy black plinth of a DP-450USB and plugging it into our system.

Build & features

One surprise with this turntable was how long it's been in the market; it was introduced back in 2019, though of course that's a relative newbie compared with some turntables still on sale after decades. And this is a good-looking design, "updated minimalistic" as Denon describes it, with "all unnecessary decoration eliminated", and all in black (a rather natty white/silver version is not available in Australia). The plinth material is described as a damped weighted composite alloy, its shiny surface feeling more luxurious and lacquer-like than mere plastic, though perhaps don't touch it, as it attracts fingerprints easily, especially around the 'record' buttons. It is a few centimetres short of full hi-fi width, which allows a little extra space when positioning it on the top shelf of a hi-fi rack.

It also requires less height clearance than most comparable turntables because of its unusual cover, a flat Perspex sheet with a domed cut-out to accommodate the tonearm. This sheet sits on top of the platter when the turntable is not in use, with a hole over the spindle and the bump over the tonearm; it thereby provides protection, and a dust-guard for the platter. Though not for the plinth, and nor do you benefit from the sound isolation of a closed hinged lid during playback — but, claims

> "Turntables which do USB recording usually require a cable and then software to record. Not here: you just shove in a USB stick and then press 'record' when ready."

Denon, this solution does eliminate "vibration issues that affect music quality associated with attached covers". It does looks cool when in place on the turntable, the cartridge peering out from the bump of the cover, like Henry the Green Engine peeking warily out of his old railway tunnel.

But what to do with it when you remove it to use the turntable? Denon provides a solid little 'dust cover stand' which holds the lid vertically (as pictured right); while this still takes up a fair bit of space, the manual suggests this could "also be set up for use as a record stand. Use it to display the sleeves of your records." Yeh, why not.

The stylus is listed as the DSN-85, indicating the cartridge to be the Denon DL-85. You can get stylus ($169), cartridge ($228) and/or headshell ($202) as part replacements from Denon; however the cartridge seems based on an Audio-Technica original, and Masimo confirmed that you might fit the ATN91R (under $50) or upgrade through that series (ATN95E, 100E, 120E) for a replacement stylus.

You fit the aluminium platter, with the belt pre-installed around the inside of the platter, to be lifted over the drive cog using a piece of red ribbon (to avoid getting grease from your fingers onto the belt).

There are some unusual touches. One is the deck's semi-automatic operation, which does two things: it lifts the arm at the end of a side, invaluable if you tend to wander off (or fall asleep) during vinyl playback, and will then later start the platter spinning automatically when you move the arm back over the platter. It doesn't swing the tonearm back to its rest, as in fully automatic playback, but such extreme convenience is generally frowned upon in audio terms, requiring a whole extra set of cogs and stuff which might rattle and grind and get in the way of relative purity.

And in that regard you can, unusually, turn off the semi-automaticness if you so wish, using a two-position (in/out) button at the rear; press this to return the DP-450USB to manual operation.

Also to the rear is a two-way switch (left/right) to bring the turntable's electronics into play, switching in or out the phono preamp stage which allows you to connect the output leads directly to any line-level amplifier input (or, indeed, to anything else with an input, e.g. a portable speaker). But the phono leads supplied come with an earth lead for those who want to plug the raw cartridge output into their own phono stage. (We tried both ways.)

The Denon instructions also suggest you might upgrade to a moving coil cartridge; the local team suggested Denon's standard DL-103, which would be a powerful upgrade, putting a $500 cartridge on a $1400 turntable — though this would be at the additional cost of thereby rendering the internal phono stage and USB recording unusable. So if that's your plan, you'd do better saving $200 towards the upgrade by starting with the USB-less but otherwise identical DP-400 turntable.

On the platter goes a 'turntable sheet', a very thick rubber mat to damp any resonances in the aluminium platter. This has a deep central indent, which will nicely accommodate any bulging record labels, while the mat's outer edge falls short of the full platter width by a few millimetres, a marvellous detail which makes it far easier to lift LPs off without using fingernails to get dangerously under their edges.

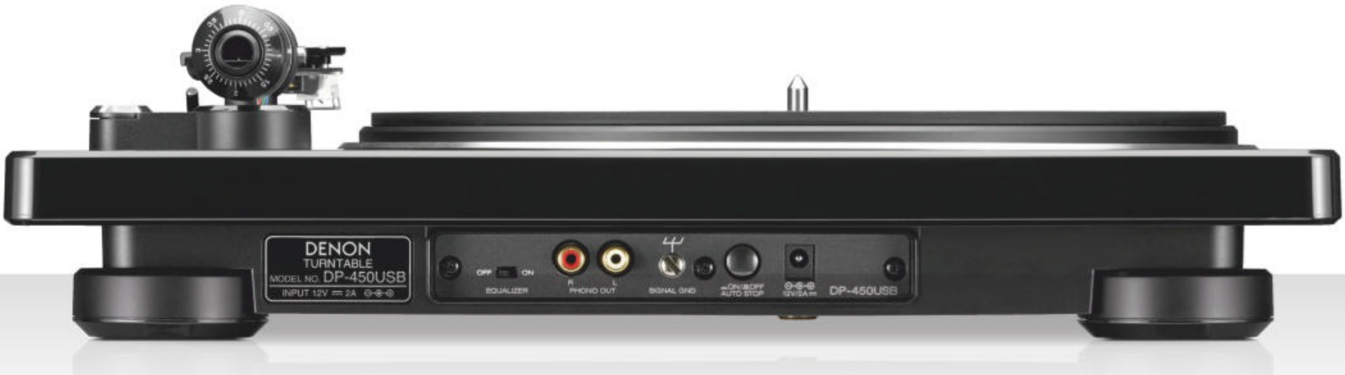
Also unusual is the way that the USB recording works. All previous turntables we've reviewed which do USB recording require you to connect a USB-B socket to a computer via a cable, and then use software to record via this connection. But not here. Instead you just shove a USB stick into the turntable's front USB-A slot and then press 'record' when ready. Which is far easier, assuming it works reliably.

Set-up and listening

We consulted the manual only briefly, to confirm the use of the button and switch at the rear before wiring up, and to check how it prefers its anti-skating to be applied. It's the usual way: screw the headshell onto the end of the S-shaped tone arm (effective length 22cm), then position the counter-weight so as to float the tonearm. Then rotate the counterweight according to the scale on its front until 2g is applied, and dial up the spring counterweight to the same reading. The cartridge is pre-aligned in the headshell, accurately so in our sample.

Once you've done these few simple tasks, you're pretty much ready to go, aside from the cabling. We began with the DP-450USB cabled up to our usual external phono stage, and with its semi-automatic abilities deselected.

Start-up and speed selection are controlled by a four-position knob at front left; its speed stability is sensor-controlled.



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There is also a 78 rpm option here, rare these days, in addition to 33⅓ and 45 rpm, remembering you'd need a different cartridge (Audio-Technica's AT-VM95SP was suggested by Denon's local team).

From the first discs, we were enjoying the Denon's ability to create a real hi-fi picture of a sound mix, holding together a rich stereo image. The complexities in side one of 'Evita' (1976 original concept album) held together even as we took levels up: tonally clean, enough support below, perhaps a little rounded up top, but that generally helped avoid any harshness, even once we had Che's opening salvo up really quite loud (this double LP on MCA has C.T. Wilkinson as Che; we also have David Essex's later interpretation as a single).

On Wilkinson's strong central vocal there was a slight artificial rasp, a crackliness that detracted only slightly, but we heard it also elsewhere, and wondered if it might be stylus wear. To make sure we switched in a whole new headshell (with thanks to the local Denon team); this not only removed the vocal rasp, it clarified everything, especially strings, and significantly reduced surface noise. It does show the value of regular stylus replacement!

With this switch made, then, we went on to still greater deliveries, with impressive insight and solidity for this price of turntable. There were surprisingly punchy vinyl dynamics from Michelle Shocked's 'Captain Swing' LP (a Spanish pressing liberated from Berlin): this was thrillingly clean and pure from start to finish, her vocal foregrounded even as a full big band burst forth during *Sleep Keeps Me Awake*, or crisply sharp-edged over the acoustic bass entry to *Cement Lament*.

Chasing more of that big band sound we cleaned and span a meaty Parlophone pressing of 'Sounds Like Kaempfert'; even a fresh needle couldn't banish all surface noise from this aged second-hand disc, but Bert's joyous orchestral arrangements rose high above all that, full in the bass and airy in the highs, whether the wim-a-weh flutes and blues angels of *Swingin' Safari*, or the deep acoustic reverberation behind the stereo clapping of *That Happy Feeling*, an impressively powerful performance.

We switched to 45 rpm and grabbed a handful of singles. Two excellent Peter Sarstedt non-hits from the late 1970s — *Mulberry Dawn* and *Beirut* — demonstrated the Denon's ability to effectively conjure a full band and strings arrangement, the Denon capturing the strong vocal that pushes forward while not in the least compromising the detailed arrangement behind. Good and analogue stuff.

We don't recall ever hearing Carole Bayer Sager's 1978 single *It's the Falling In Love* quite as well-resolved as the playback here of a newly-cleaned single, and it's a beautifully bouncy Record Plant recording, which was marred only by a disc fault — pitch variation from an off-centre hole.

Diana Ross' *Chain Reaction* was given real punch in the front, real fizz for the synth brass in the right channel, and utterly creamy-sounding Diana vocal amid it all, later joined by stacked Barry Gibbs in the chorus: so glorious. This 1985 single's B-side is more intimate vocal and piano, then later strings, all kept reliably pitch stable by the Denon's belt-and-sensor watchful eye.

Another wide acoustic was delivered, this time centred around an impressively taut and solid bass guitar for the first verse of Roxy Music's *To Turn You On* (B-side of *Jealous Guy*); the whole image did compress slightly as the instrumentation grew, but then the guitar solo again had real space around it, with female 'aaahs' floating around the soundstage, while the Denon kept the guitar and piano clearly defined in their positions.

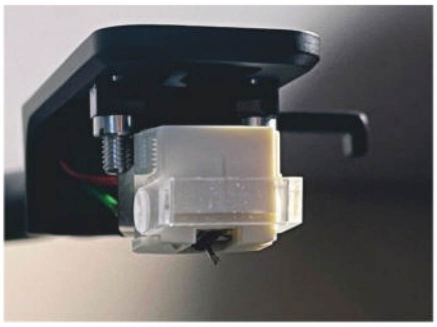
From our random selection of singles from the racks the Denon was delivering some real treats, and we were mightily glad we had been hitting the 'WAV' recording

Stick in, choose your button for recording.

MP3
REC
WAV
5V/1A

The cart peeps Henry-like from its tunnel.

The Denon cart pre-aligned in its headshell.



button for most of them. But would the recordings made from the turntable match the live experience of listening to vinyl?

USB recording

We had by now become accustomed to keeping a slim but capacious USB stick in the Denon's USB socket so that we could simply touch the 'WAV' recording button any time the needle hit the vinyl (quickly, mind; don't miss the start!). The button lights up blue while recording; you press the button again to stop. Presto, a recording is now in the 'Rec' folder on the stick.

Compare this with the procedure for most other USB turntables, which require a cable connection between turntable and computer, music editing software on the computer, and often a physical rush from turntable to keyboard in order to begin recording in time. Denon's implementation here is a whole lot easier and more reliable.

There are actually two recording buttons available: one is marked 'WAV', the other is marked 'MP3', for making 192kbps MP3s. You can guess which one we used. (We did make one MP3 recording for comparison, but why do it? Who has space restriction issues these days?)

Depending on your accuracy starting and stopping, you might keep these recordings for use just as they are, but they can benefit from a clean-up in editing software later, when you can work through a batch of them at once, trimming tops and tails, de-clicking if your recordings require it, and potentially adding gain: we found the Denon's recordings to have something around 7dB of headroom available.

Denon provides a free program called MusicCut, which can do some of this, and can also find gaps on albums and so split the tracks, even using Gracenote to try to label them. Sadly this software is PC only, so we can't attest to its effectiveness; on a Mac we used Audacity (free, with a useful de-click function) and ProTools (which now has paid subscriptions, but with a free 8-track version after you cancel).

The WAV recordings are made at 16-bit 44.1kHz, at the full 1411kbps bit-rate. These recordings involve two stages beyond our direct listening through a phono stage; first the turntable's internal phono stage has to raise the EQ, and then there's analogue-to-digital conversion before they are recorded to USB. These have an effect: the recordings were slightly less dynamic, less open, and on our system just slightly shifted to the left compared with listening to vinyl direct. That makes sense: of course you should listen in full analogue and in real time for the deck's very best sound! We were impressed, however, that the recordings retained most of their depth and tonality, and also removed the very low-level hum we'd failed to banish via the direct path.

Verdict

Pick your playback level: phono-level direct from the cartridge or line-level using the internal phono stage. Select between semi-manual or manual operation. Use a USB stick for super-easy digital recordings of vinyl (or if you don't need that, save $200 and get the otherwise identical DP-400).

But most of all, simply enjoy the excellent sound at the price from this shiny Denon deck, the rich and open-sounding results listening direct from its cartridge. Those looking to return to the joys of vinyl will find all the right decisions made here for a combination of simplicity of use and sophistication of sound.

DENON DP-450USB

- Rich and open sound at the price
- Phono or line-level output
- Easy USB recording

- Flat cover doesn't fully protect

Price: $1399

Drive: Belt drive
Motor: DC servo motor
RPM speeds: 33⅓, 45, 78 rpm
Tone arm: Static balanced, effective length 220 mm
Output: phono-level, line-level, USB recording
Quoted S/N ratio: 65dB
Dimensions (wdh): 414 x 342 x 132mm
Weight: 5.8kg with cover

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MARANTZ MODEL M1

WIRELESS STREAMING AMPLIFIER

Full-sized hi-fi performance from a compact box, with built-in app-controlled streaming and easy multiroom expansion: has Marantz here delivered a real high-performance little room player?

Hi-fi amplifiers have long had wide front fascias — wide enough to include a couple of knobs and some lights, wide enough to match the width of your CD player and turntable. A certain size of chassis also allows air space for convection cooling, and metal for conductive cooling.

But in the age of streaming, many music lovers don't have either a CD or a turntable, and certainly not a tall rack of hi-fi components. Amplifier technology has also improved in efficiency, with Class-D circuits reducing the amount of heat produced during amplification.

All of which feeds the trend today towards invisible hi-fi, small hi-fi, hideaway hi-fi. Sonos introduced its first 'zoneplayer' 16 years ago: a small streaming amplifier. Many have followed suit, and some have used higher-quality amplification. The promise from the Marantz Model M1, then, is a modern compact amplifier, well-equipped with suitable inputs, and delivering amplification to the quality for which the brand is renowned. With streaming onboard, you could add sources, but you might add just speakers to make a complete system. How well does it succeed?

Design & features

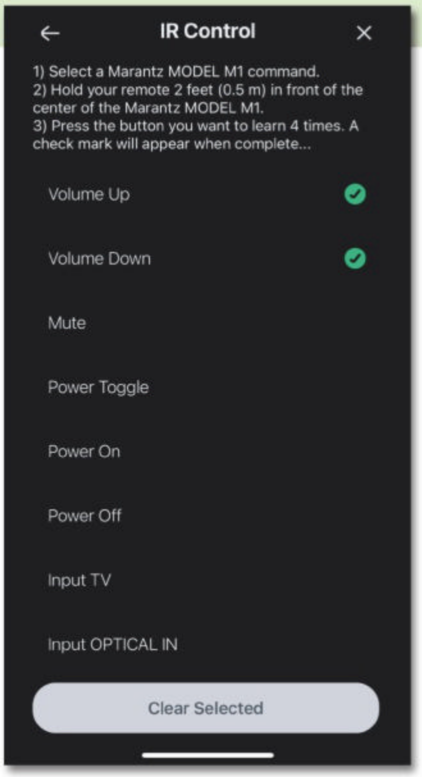
The Model M1 is a 24 × 22cm near-square with 8.4cm height: it weighs a couple of kilograms, has rounded edges and a top-panel vent mesh with a wavy 'interference pattern' weave that emulates the similar design element used on its latest larger components.

It's easily wall-mounted; it has a single threaded mounting point on the base, or is compact enough that two units can be installed side-by-side on a rack. If you do leave it accessible, you can use the three capacitive touch buttons on the front for play/pause, volume down and volume up.

Though compact, the M1 brings 100W of amplification per channel (into 8 ohms at a hi-fi-level 0.05% THD), a DAC with high-res audio support for PCM and DSD playback, and also the HEOS platform, which gives you access to a host of streaming services within the app, and local streaming of files on networked devices. In addition, outside the app, you can stream to the Model M1 using Spotify Connect or Tidal Connect, Roon (paid software), AirPlay 2, and Bluetooth (SBC codec only).

Round the back, meanwhile, are a minimal but well-considered set of inputs: one analogue RCA pair, one optical input, a USB-A slot, and an HDMI socket to play back from an ARC-equipped TV.

> "It achieves Marantz's goal of sounding like a conventional Marantz hi-fi amplifier, and it is hard to fault at its price for serving music or TV playback in a small to medium room..."



1) Select a Marantz MODEL M1 command.
2) Hold your remote 2 feet (0.5 m) in front of the center of the Marantz MODEL M1.
3) Press the button you want to learn 4 times. A check mark will appear when complete...

No remote included, but the Model M1 offers IR learning for the above commands.

There's an Ethernet socket to provide a cabled alternative to the built-in WiFi for networking, and there's a subwoofer output should you wish to boost your playback to 2.1 channels with an active subwoofer; from within the HEOS app you can adjust high-pass-filter and low-pass-filter frequencies independently, and apply ±15dB of subwoofer level.

There's a little IR flasher input in case you choose to hide the M1 so far away that you need an IR extension. That might seem odd, given that the Model M1 doesn't come with any remote control — which is an omission for our money, although the Marantz does have IR learning, so you can use an old remote, or unused keys on your TV remote to control it. If using the HDMI ARC input, your TV remote should hopefully run the volume anyway.

The last connections on the rear are the binding posts which are all "smoke grey premium finish" on their outside plastic, but thankfully still red and black on the inside, the easier for connecting your speakers correctly.

Construction of the box overall is excellent, which should come as no surprise since the M1 is built in the same Shirakawa Audio Works factory in Japan as its high-end hi-fi equipment.

Set-up and listening

Marantz differentiates the quality of this particular compact stereo amplifier by noting its fully digital layout, and the use of 'Marantz Musical Digital Filtering' (MMDF), developed to ensure maintenance of "familiar Marantz tonal characteristics, often said to sound more 'analogue' in nature", including oversampling digital filtering techniques from the company's reference-grade audiophile products.

There is high-resolution audio handling up to 24-bit/192kHz PCM, and DSD up to DSD128. Plus there's that ability to handle TV playback and so provide a complete music and TV solution.

Finally there is the idea of having a home full of Model M1s working together as a multiroom music system; if you go in this direction Marantz also has a Model M4 (priced at $5500) which provides four sets of stereo amplifier channels and four independent HEOS modules in one box.

In fact a Model M1 could equally work in a multiroom manner with any HEOS-equipped component, from Denon or Marantz, from high-end AV receivers to standalone speakers. And the corollary of this is that if you're already running a HEOS-equipped Marantz or Denon amp or AV receiver, then this Model M1 will provide a very easy connected add-on for additional rooms of music.

We began with the Model M1 replacing our usual amplifiers in a reference system with fairly friendly but large standmount speakers. It immediately announced itself as a musical amplifier, in command of a fast and dynamic presentation, with an authority you would not expect from a unit so small and unobtrusive.

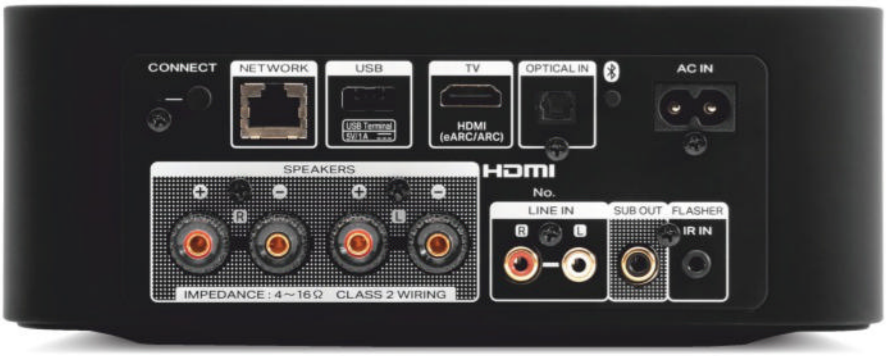
On the Stones 'Grrrr Live' (24-bit/48kHz streaming from Tidal Connect), the opening crowd noise is set up as an odd wall of sound, but the Stones quickly break that down with a powerful *Get Off Of My Cloud*; Jagger's vocal can all too easily come through brash or sharp here, but the Model M1 kept him perfectly in check while still imparting plenty of edgy crunch and drive to the band around him.

Still streaming, we played Maggie Rogers' *Overdrive*, opening her 'Surrender' album; it begins with a clearly-portrayed electric bass figure but suddenly bursts into something extra-dimensional; the M1 really pushed this remarkable mix wide, and allowed its thunderous underpinning full rein to fill the room with energy. Rogers' remarkable voice remained clear, defined and almost dry within this massive edifice of energy all around her; this was an impeccable delivery by the Model M1.

We tried internet radio, and network streaming. We compared AirPlay 2 streaming with the HEOS app's 'This Phone' playback of the recent remasters of Jimmy Page & The Black Crowes 'Live at the Greek'; the HEOS stream was most clear, though the app announced this as 16/48, when the file from CD is 16/44.1, as was the Tidal Direct stream, so it seemed not to be the usual direct UPnP playback.

One particularly pure-sounding path was found using Audirvana Studio software on a Mac laptop and then addressing the M1 via UPnP; Audirvana indicated the M1 was good to DSD128 and 24/192 as promised, and the Marantz proceeded to deliver thrilling clarity via this path. The Page & Crowes Tidal stream shed all its rough edges, encouraging rather louder playback and still more pleasure; this quickly became our playback path of choice to the Model M1. (Audirvana, like Roon, is playback software that requires a subscription or lifetime purchase; we currently have a review licence for testing it.)

Via this UPnP route the drum entry over the languid piano of *Roam* by Mark Warford arrived as a positively alarming square-wave slap of clarity in the face, while the traded vocals of Rufus Wainwright and David Byrne on *High On A Rocky Ledge* were razor-sharp in their edge-etching



and soundstaging, fully present in their presence on this beautiful piece. The Model M1 drove us powerfully and playfully through several hours of Let's Eat Grandma. Its performance simply outsized its chassis: the Model M1 is a little amp that roars.

Variations

The HDMI eARC socket gives the Model M1 a strong potential role as an amp for both music listening and TV watching; your TV needs only a socket which is labelled ARC or eARC and the sound should flow from all TV inputs and smart TV streams to the Marantz and onto your speakers.

If HDMI CEC is engaged and working, your TV remote should control the Marantz volume. And if it doesn't, do the IR training, which works very well, with a selection of commands that can be assigned to any remote key you have unused and available. You select the command, point the remote and press the key four times, and it's done.

This type of control also proved less coarse than the large volume increments from our phone's physical buttons when using Tidal Connect, though the slider controls in the HEOS app were better able to provide fine resolution (and Audirvarna's controls on laptop still more).

Obviously the Model M1 has competitors, including the very similar 'Home Amp' from Marantz sister brand Denon. Marantz has presumably used some different components; it is tuned by the Marantz 'Sound Master'. And given how enthusiastic we got about this amplifier, especially during Let's Eat Grandma, we reckon the Marantz's performance here, on pure playback paths at least, does give it a fair sonic edge. But the price difference between the two is wide ($1199 for the Denon, $1600 for the Model M1), so the Denon offers impressive value. Only direct comparison will assure you whether a different sound guru and technologies like Marantz's Musical Digital Filtering Marantz are worth the extra to you.

Verdict

Competitors aside, the Marantz Model M1 certainly holds up its claim of delivering superior processing and amplification in a compact amplifier: real hi-fi made small. Check that its relatively limited input selection satisfies your needs (while remembering also its extensive streaming abilities and the HDMI TV-based path to playback); if all's well then we see no reason to reject the Model M1 on the basis of mere size. It achieves Marantz's goal of sounding like a conventional Marantz hi-fi amplifier, and it is hard to fault at its price for serving music or TV playback in a small to medium room, given a good loudspeaker pairing.

Of course you could spend zillions more in search of ultimate hi-fi clarity at high levels, or like us you could whinge that you'd like a remote control and a knob on the front. But that's not the M1's brief. What it does instead is to excel at its lesser task of being an easily hidden-away black box which can conjure surprisingly hi-fi sound from your preferred music streaming, all under your phone's control, and with significant expansion options both in the room and around the house. Easy smart amplification for streaming people that care about their sound quality? Job done.

MARANTZ MODEL M1

- Proper hi-fi amp performance
- HEOS streaming & multiroom
- Useful inputs
- IR learning…
- …though no remote provided
- Bluetooth offers SBC only

Price: $1600

Inputs: HDMI ARC/eARC, RCA analogue stereo, optical digital, USB-A, Bluetooth (SBC only), Ethernet/Wi-Fi, Spotify Connect, Tidal Connect, HEOS

Outputs: speakers out, RCA subwoofer out

Power: 2 x 100W into 8Ω, 20Hz-20kHz, 0.05% THD; 2 x 125W into 4 ohms, 1kHz, 0.05% THD

Dimensions: 24 x 21.7 x 8.4cm

Weight: 2.2kg

Contact: Marantz Australia

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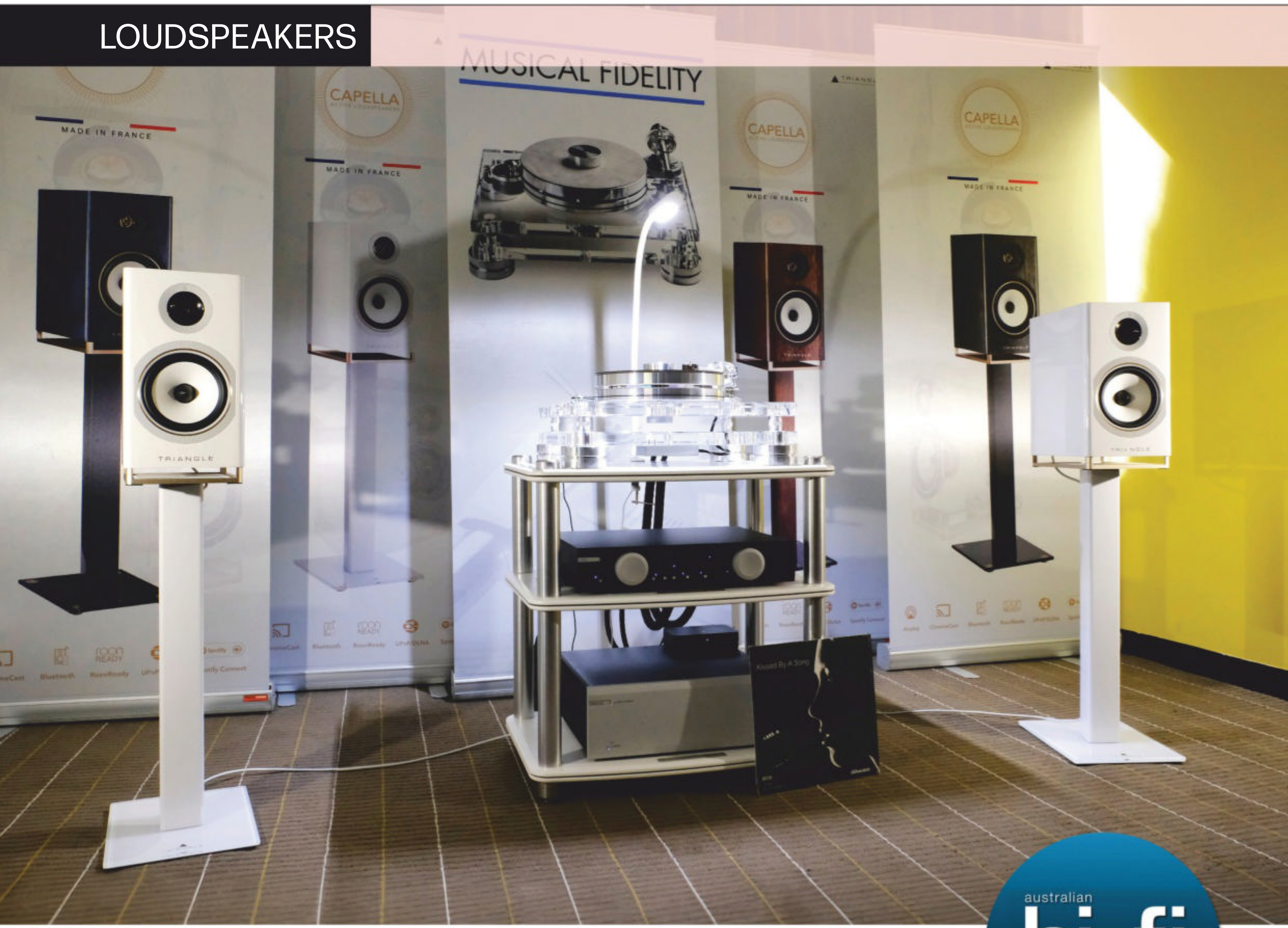


australian hi-fi Show SYDNEY 2025

TRIANGLE CAPELLA

WIRELESS ACTIVE SPEAKERS

The simplicity of these streaming active speakers is impressive, but it's the sheer size of their performance which amazes all who hear them.

Many of the visitors to the recent Australian Hi-Fi Show in Sydney will remember having had their socks and their ears blown off by the demonstration going on in Audio Marketing's room on the ninth floor (pictured above), a space presented with the able assistance of Sydney retailer Len Wallis Audio. The visceral impact of the sound, its almost alarming dynamics, were coming not from vast tower loudspeakers, but from brightly-glossed little white standmount speakers.

And while many rooms at the Show were filled with racks stacked high with supporting components — streamers and preamplifiers and power amplifiers — here the speakers required none of that, because they had both streaming and their amplification built in. (The room did have a rack, topped by Musical Fidelity's clearly impressive M8xTT turntable and new M8x Vinyl phono stage, but the Capellas didn't need those to do their acoustic shock treatment.) If further proof were needed that the day of the wireless active loudspeaker has arrived, this was it.

*Wireless active speakers do offer a wonderfully simple solution, what we might call an "all-in-two" solution: not a single-box hi-fi, but two boxes, which can be positioned for genuine stereo. The delight is that no other gear is necessarily required to make music: the speakers contain the electronics to stream and to amplify, and the drivers to play your music.

In most cases they also have inputs on the back, so you can plug in other sources, like a CD player or your TV. But the main convenience factor is in having an easy-to-use space-saving two-box solution.

So here comes Triangle, from France (and thus most accurately pronounced '*tree-ongeler*') with these Capella wireless speakers, resplendent here in gloss white, but you should see (overleaf) their cosmic Astral Blue or Brown Nebula finishes.

Ah, but the Triangle Capella wireless speakers are not, in fact, a two-box solution at all. There are three boxes.

Build & facilities

The Capella's box count is three because the connections and switching have been separated from the pair of speakers, a good idea in terms of purity, and potentially convenience too. The third box is a small control box which Triangle calls a Stereo Hub, and it is responsible for all the input connectivity, and then sends the music signal wirelessly to the speakers.

The Stereo Hub scores well in the input department. There are two analogue inputs, one on normal RCA phono sockets, one as a minijack socket which doubles as a mini-optical input, even though there's a generous threesome of full-size optical inputs. There's one coaxial digital in, and a USB-B socket allowing direct playback from a computer. Finally an HDMI socket transforms the possibilities for plugging in your TV to enjoy a full music and entertainment system. Plus there's streaming: once networked the Hub will also receive and forward signals arriving via Google Cast, AirPlay, or Roon.

Including both USB-B for computer and HDMI for TV impressed us; few such speakers (or all-in-one) systems include both these options, which allow easy use in either a desktop office environment with computer, or as a TV-flanking living room set-up, as well as enjoying their more fundamental stereo hi-fi music abilities.

The one omission is a phono-level input for a turntable. But plenty of turntables include a built-in phono stage to avoid needing one of your own; indeed Triangle has one of its own coming, the Lunar 3, produced in collaboration with Pro-Ject.

There is Spotify Connect here, direct to the Hub, but not Tidal Connect. In some ways that's good: streaming services change, and by focusing on Google Cast and AirPlay, Triangle will no doubt avoid the need for a lot of future updates. So while Triangle's French website shows the logos of Apple Music, Qobuz, YouTube Music and Deezer among others, the speakers or Hub do not support these directly; rather you stream them over from your smart device like any other form of music, or attach a separate streamer box to the Hub. An AppleTV 4K, say, would serve to deliver Apple Music or Tidal at high-resolution, as would a subscription to Roon software.

You do, thankfully, get a full remote control, and it's a neat radio-frequency unit with nice intuitive controls. Source selection is only a shuttle rather than dedicated keys, but LED feedback shows the selected source and volume, making everything clear and so a breeze to use.

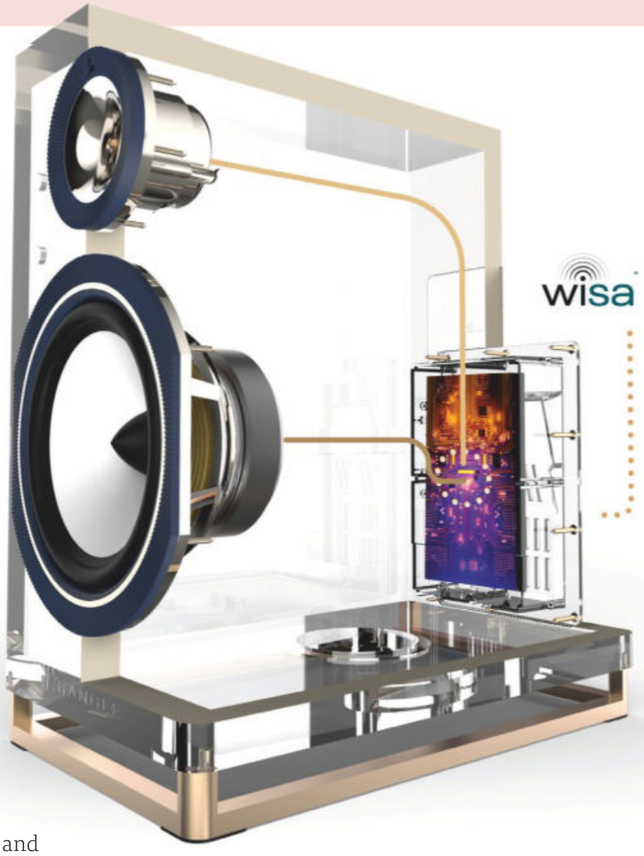
Speaker tech

The Stereo Hub is a rather anonymous small plastic box, though put together well enough. But the speakers are far more impressive: solidly assembled and luxuriously finished; we spent time in our review rooms with a glossy Astral Blue pair, while three other flamboyantly-named finishes — Black Star, Space White and Brown Nebula — look almost as gorgeous. Each (except the white) has the mottled patterning you can see in the pictures overleaf: we don't know how this is made exactly, but it seems a clever combination of grain and paint, since Triangle says: "*Underneath the lacquer is a sublime burr walnut essence, with wood grains gradually revealing before disappearing in a paint gradation*."

Plus it's no surprise, considering the brand's core expertise, to find the speakers to be equally well-equipped both for their internal structure and for their drivers, which incorporate the results of research carried out for the company's limited 40th anniversary edition of the Esprit range, such as the phase-plug design for the new horn-loaded 25mm magnesium/aluminium alloy-dome tweeter design.

Below this is one of Triangle's favoured cellulose-pulp (paper) mid-bass woofers measuring 16cm, equipped with ventilated aluminium chassis and a half-roller foam/rubber assembly. Its output is tuned by a downward-firing port, flared at both ends and firing through the base through gaps in the aluminium-frame plinth. This aims to make the speakers less sensitive to nearby walls, and so less fussy about positioning.

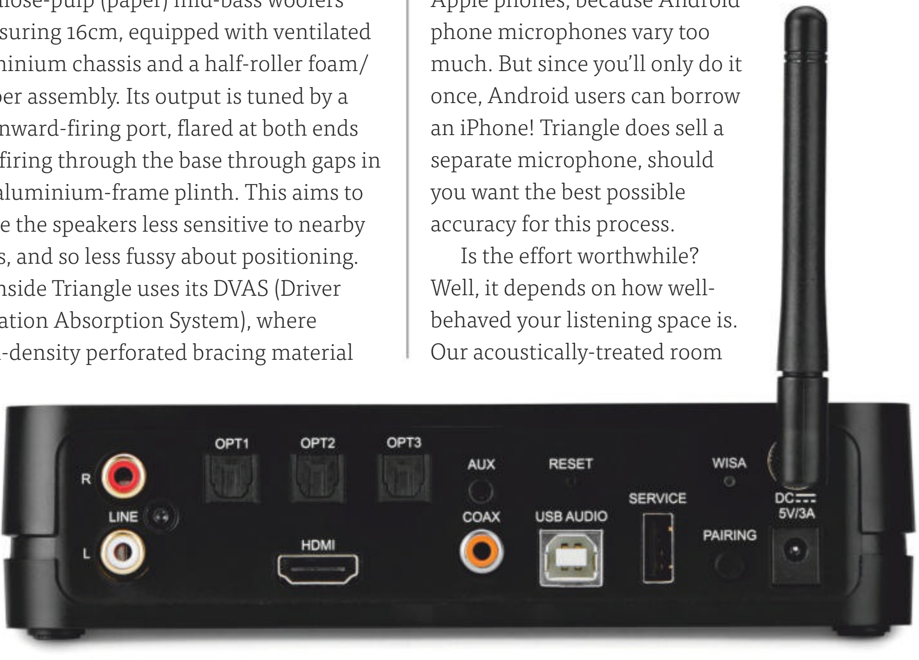
Inside Triangle uses its DVAS (Driver Vibration Absorption System), where high-density perforated bracing material



is bonded to the back of the mid-bass driver via a layer of damping material, thereby stiffening the driver and cabinet connection and so significantly reducing loudspeaker vibration to achieve a more precise listening experience, says Triangle.

One of the advantages of an active design, here with a dedicated DAC module and 50W of power for each drive unit, is that onboard signal processing can be used to optimise each drive unit's behaviour. The app can go further, measuring and equalising the bass output for your specific room. This measurement only works with Apple phones, because Android phone microphones vary too much. But since you'll only do it once, Android users can borrow an iPhone! Triangle does sell a separate microphone, should you want the best possible accuracy for this process.

Is the effort worthwhile? Well, it depends on how well-behaved your listening space is. Our acoustically-treated room



didn’t benefit much from using the equalisation but a more uneven room might. Regardless, it’s free to try for Apple users, and so worth a try.

Set-up and listening

Set-up for streaming was also simple, with only the Stereo Hub requiring networking, achieved through the Google Home app, followed by a bit of pairing via buttons on the rear of each speaker and the Hub. We were up and running in less than a minute!

The Capella uses WiSA wireless technology for the connection between the three units — and there is no cable link between the two speakers, as there is on some rivals. WiSA is compatible with signals up to 24-bit/96kHz resolution.

And since there is both digital processing and digital transmission, the analogue inputs are therefore being digitally sampled (at 24-bit/96kHz). We doubt you’ll ever notice, except for a moment’s delay when dropping a stylus onto a record if attaching a turntable, but we guess that analogue die-hards should at least be aware!

There is a label on the back of each speaker that designates whether it goes on the left or right. If for some reason you want to use the speakers the other way around, this can be switched from the Capella app.

The performance of any standmounter is heavily dependent on the quality of its support. Triangle makes stands that work well with the Capella sonically (the S05, around $650 per pair). These have top plates that fit perfectly into the aluminium plinths at the base of the speakers’ cabinets.

We settled on having the Capellas around 70cm from the rear wall, well away from the sides, and angled in slightly towards the listening position. The Stereo Hub we placed away from the speakers, near our sources and laptop.

Stereo imaging was stable and impressively precise when angled in as described. And regardless of the input used, the Triangles delivered the company’s familiar energetic delivery. They were right at home with Usher’s *OMG*, delivering the song’s pulsing beat with enthusiasm and drive, communicating the energy in the music: it was hard to sit still and just listen! Despite not being huge speakers at 38cm high, they did a good job at punching out the lows on this song: not the very deepest bass, of course, but taut and agile, tidy even when pushed, which is an admirable quality. In the manual Triangle specifies the bass as reaching to 42Hz at -3dB down.

Vocals cut through with clarity and were delivered with pleasing articulation and subtlety, sounding a little forward but not intrusively so unless the volume level was pushed hard. A sweeter top-end and more natural warmth might be appealing, but that might also dampen the Capellas’ extrovert personality.

And this doesn’t preclude subtlety, as shown by Beethoven’s *Moonlight Sonata*, where this package sounded bold but considered, delivering resolution and insight, capturing the dynamic impulses of the piano superbly and rendering the instrument’s harmonically rich tones with conviction while highlighting the exact timing of notes, the slight differences in force applied to the keys. It all fit together into a cohesive and musical performance.

Verdict

The potential value of active speakers is displayed here, in that we think you’d be hard-pressed at this price to buy a conventional stereo amplifier and passive speakers that would match the grip and sense of control delivered by this package, its combination of broad, smooth treble dispersion and rich, controlled bass delivery, and also the streaming abilities along with it. The Capellas’ character also stayed nicely consistent whether playing via analogue or digital inputs, wired or streaming. The Hub, although less impressive as an object, does add to their versatility in offering a solid range of inputs together with ease of connection in physical terms — you don’t need to connect sources directly to the speakers, as in many rivals. All this played into their selection by EISA as a deserving award-winner for 2024-2025 in the category of Premium Wireless Bookshelf Loudspeakers — and the first such winner, to our knowledge, to come with three boxes, not just two.

TRIANGLE
CAPELLA

- Powerful performance
- Great inputs via 3-box concept
- WiSA streaming

- No Tidal Connect

Price: $5500

Speaker type: bass-reflex active speaker

Drivers: 25mm magnesium-aluminium tweeter, 16cm paper midrange/bass driver in cellulose pulp

Hub inputs: 1 x RCA analogue, minijack analogue/optical, 3 x optical, 1 x coax, USB-B, HDMI (ARC-CEC), Bluetooth, Spotify Connect, Google Cast, AirPlay, DLNA, UPnP, Roon Ready

Speaker inputs: WiSA streaming, RCA phono

Power: 2 x 100W

Dimensions (hwd): 38 x 20 x 31.5cm

Weight: 8.5kg each

Hub dimensions (hwd): 4.5 x 7 x 10cm

Weight: 0.5kg

Contact: Audio Marketing

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VIVID AUDIO KAYA S12

STANDMOUNT STEREO LOUDSPEAKERS

It's Vivid Audio's smallest speaker, with just 12 litres of internal space. Yet it loves going loud and it's not short of bass. What's its trick?

Vivid Audio recently launched its biggest ever loudspeaker design: the Moya M1, a five-way 13-driver system weighing 346kg. But here we spend time with Vivid's smallest ever loudspeaker, the Kaya S12.

Whichever end of the Vivid range you investigate, its speakers are famously curvy, the acoustic principles behind them developed by chief designer Laurence Dickie, ever since he was involved in Bowers & Wilkins' famous Nautilus 'snail' speaker.

Key to that design was the idea of tapered tube loading (TTL) to absorb the back energy from drivers, energy which would otherwise cause reflections within the cabinet and interfere with the forward radiation, colouring the sound. These tapered tubes contain wool fibre as a damping material, and this is increasingly compressed as the tube tapers, absorbing all sound by the end, so that nothing is reflected back though the diaphragm. Absorbing rather than merely containing the back energy is seen as key to the clarity of performance in Vivid's loudspeakers.

While Bowers & Wilkins' highest speakers still implement the famous tweeter-on-top with a 'Nautilus' tube behind it, at Vivid Audio Laurence Dickie has applied his "exponential absorbers" as a standard solution for all the drivers. The extraordinary shapes and organic curves of the company's Giya range are the direct result, yet there was nothing aesthetic about it: Dickie's designs were pure form following function. As with that earlier Nautilus, their beauty is undeniable, as if we naturally recognise the appeal of a perfect engineering design.

Kaya comes home

Beautiful the flagship Giya collection may be, but they're not for every home. That led to the 'Kaya' range. *Kaya* is the Zulu word for 'home', says Vivid Audio, and it is used appropriately since Vivid Audio was originally founded in South Africa, and its production facilities are in the garden province of KwaZulu-Natal, while its design, technical and administration are a little further north... in West Sussex, England.

The whole Kaya 'home' concept was intended to extend Vivid's skills to sleeker and more compact enclosures (in relative terms), creating speakers that integrate more easily into smaller spaces — "perfect for rooms where the sound system is part of the space, rather than the main feature", as Vivid puts it. The company enlisted the aid of Matt Longbottom and Christoph Hermann for their industrial design, both of whom worked at Lovegrove Studios for industrial designer Ross Lovegrove, the man responsible for the exterior design of the KEF Muon, among other things.

We do like the naming convention for the Kaya range, another nod to the engineering, since the numbers speak directly to each model's internal volume: from the 90 litres of the large floorstanding Kaya 90, through the Kaya 45 to the slender and attractive Kaya 25, down to the mere 12 litres of the model on review, these Kaya standmounters. This simple system of nomenclature is thus user-friendly, given that the curvaceous shapes preclude any other easy calculation of cabinet volume (immersion in water might be the easiest way, but no doubt problematic in the longer term).

While the other Kayas are called simply Kaya 90, Kaya 45, etc., these standmounters gain an 'S' to make clear their need for support beneath, so they are 'Kaya S12'. And there are dedicated stands, to which you might say 'meh' until you see them, as they extend the curve concept and make the S12s look still more space-age and other-worldly. The stands also provide security and stability for what are remarkably light loudspeakers that might be less secured merely sitting on random stands, especially if out into the room.

The S12's enclosures are formed from what Vivid calls RIMCast PM resin, a kind of initially liquid polyurethane that pours like water into a mould, reproducing even fine detail. And again this isn't done simply

> "Turn them up. That's where the S12s come to life, it's how they surprise, it's when their detail and soundstaging merge with power and solidity of bass."

as a way of generating attractive shapes: the construction method also makes the enclosures very stiff when compared to wood. The construction method also means that the outer layer can be tinted almost any colour you want, which is very handy if you want the speakers to match the décor of your room. We first saw the S12 in a marvellous tree-frog green (see overleaf) at an Australian Hi-Fi Show; however that is a 'bespoke' colour option that increases the price. The pair we later reviewed were in white pearl finish, one of the $10,500 standard options, along with Piano Black and Oyster Matte.

The Kaya range follows all Vivid Audio speakers in using the company's D26 anodised aluminium alloy tweeter, which tackles break-up resonances in a couple of unusual ways. Firstly there's its shape, described as a Catenary Dome Profile (CDP). In geometry, a catenary is the curve formed when a long cable is supported at its ends and then hangs under its own weight — a hyperbolic cosine curve, this is, which differs from a parabola in having a less defined peak. Simple suspension bridges (those without chains or cables) hang in this natural catenary curve, and when inverted it is an efficient form of arch which minimises materials and will always support its own weight. Gaudi was a particular fan of catenary arches, and in more modern times the golden arches of McDonald's are also more catenary in their curvature than they are parabolic.

Use a catenary curve to describe a 3D domed surface and it turns out to have a first break-up mode almost an octave higher than a conventional spherical tweeter dome (to above 44kHz, we gather). This handily minimises resonances in the audible band and promises to keep the midrange particularly clear of irregularities.

In addition to their shaping, Vivid's tweeters use Laurence Dickie's innovation from some decades ago of adding stiffness by surrounding the dome's edge with a ring of highly stiff carbon fibre; this pushes break-up frequencies still higher.

The dome is mounted atop an edge-wound aluminium voice coil that is driven by eight radially polarised neodymium iron boron magnets. According to Vivid Audio, the magnetic flux density in the voice-coil gap that results is so powerful (2.4 tesla) that it could not use ordinary ferrofluid, and Ferrotec Corp (USA) was commissioned to formulate a special recipe specifically for the D26.

And behind the tweeter, hidden in the cabinet, is that fibre-damped, exponentially tapered tube which, according to Laurence Dickie: "has an acoustic performance identical to that of an ideal enclosure, being completely free of resonance or reflection."

The tweeter crosses over at 300Hz to the mid-bass unit, designated a 'C100L', a 100mm alloy cone unit with a notably bulbous dust cap, again an unusual shape which apparently pushes the cone break-up out-of-band by increasing the frequency range over which the cone (and dustcap) move pistonically. Vivid Audio claims most manufacturers either use a dustcap simply to keep dust away from the voice coil or as a way of boosting high frequency output after the main cone has entered into its break-up zone.

And despite the relatively small cabinet of the S12, the mid-woofer still enjoys a form of exponentially-tapered tube loading. Indeed it was discovered that this would have to address not only the usual top-to-bottom cabinet resonances but also, in this smaller two-way model, horizontal resonances. Dickie experimented with a 3D dodecahedron of tubes, then a version folded up into a ball, but he ended up instead using the inside of the enclosure itself, with an inner casing (in maroon in the diagram overleaf) sitting inside the internal moulding (green), with a series

The 'Kaya' range in ascending order of volume: Kaya S12 (12 litres), Kaya 25, Kaya 45 and Kaya 90 (90 litres). There is also a matching centre-channel Kaya speaker available, the Kaya 35.

of lateral ribs then forming the channels of the absorber, an arrangement Vivid has called an Omni Axis absorber.

The crossover board sits down at the bottom, and offers a single pair of gold-plated banana-friendly sockets just below the small rear port, making bare-wire connections a little fiddly, though not as much as with larger Kaya models, partly because the S12s are more easily moved around, being quite light (just 6kg each). The minimal weight is something which would also make us less worried about trying their other mounting option, a neat (and of course curvy) wall bracket.

Performance

Any idea that the smallest Kayas might be all midrange and top but no bass was swiftly dispelled by hearing the rich bass underpinning the Dark-side mix of Peter Gabriel's *Four Kinds of Horses*, both the tight Tony Levin stabs of almost synth bass, and in the rolling drone which underpinned the whole soundscape, especially deep over the choruses. A sweep showed them picking up full strength above 160Hz, but with useful audible response right down into the highest 30s of hertz. While they offered nothing for the contrabass D (around 37Hz) of *Stereophile*'s organ bass tester, they had no problem sounding out the G (at 49Hz).

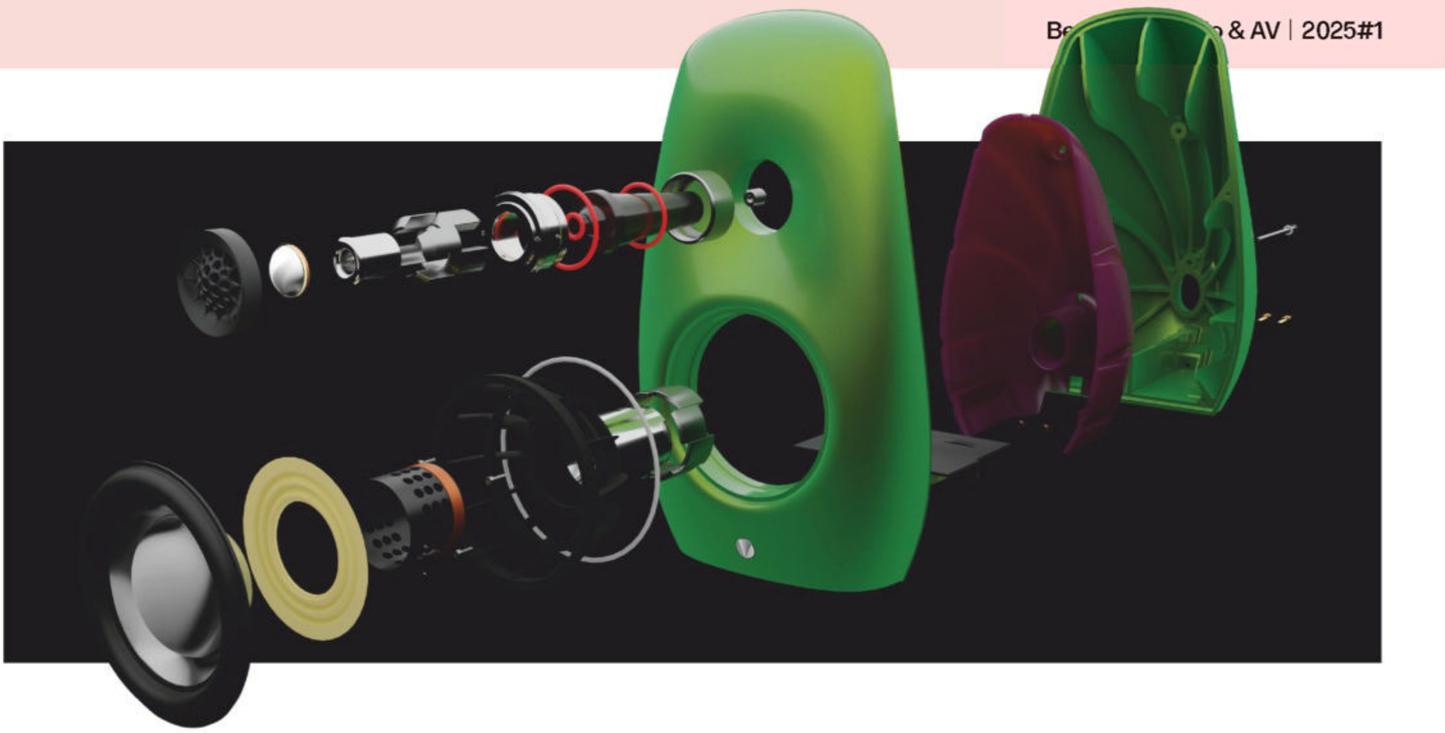
So no real worries on support from below; it's perhaps never going to dominate, so that we might have said the S12s are not going to be a dance lover's dream. But in fact the first time we cranked them into skyward territory was during their warm-up period to entertain a visitor who wanted to hear what these curious bulbous $10k standmounts could do. And her choice was French musician and DJ Clo-Zee — whose 'Neon Jungle' remixes are full of wide detailed audio cues which the Kayas portrayed magnificently, including the pulse of the synthesised bottom F on the first track, *Perfect (Of the Trees Remix)*: that's 44Hz, and no problem here, thank you.

The other bass delight for EDM fans is the speed of response here, the transient edges available particularly for the squarer pulses of electronic bass, and especially during any accelerating build-ups to drops — so tight, yet with so much air-shifting available from the alloy bass cone that you could feel the pulses in the air.

This is perhaps the defining characteristic of the S12s across the frequency range: the sharp-edged clarity given to every element, and the impeccable soundstaging that comes with this clarity of detail. This brought acoustic recordings to absolute life. The recently-released 1994 recording of Keith Jarrett playing sonatas by Bach's son Carl was spellbinding in its nicely simple stereo miking, and further showed the even range of these speakers from high to low, a true realism of tone.

As is often the way with highly revealing speakers, they can sometimes be a little too revealing of less than perfect recordings. We couldn't on this occasion play Alex The Astronaut's early and wonderful *Already Home* too loud, because the Kayas were pretty brutal on the boxy treated vocal; fine at moderate volume, but it just got boxier with more level.

This was unusual, because on the whole, the S12s just loved going loud; they beg for it. The better the production, the better they sound. 'The Dark Side of The Moon' (50th anniversary remaster) we turned up and up, so that we were in among the swirling synth lines of *Any Colour You Like*, enjoying



Nick Mason's drums sounding astounding real, and were positively jolted upright by the flanged guitar break clanging in like a metallic bell before the guitar part becomes split across the stereo soundstage for the jam down into *Brain Damage*.

Look What You've Done by Radio Free Alice (the Melbourne band, not the Darlinghurst record shop) sounded fantastic, a big tom boom from the right channel before settling in all jangly Cure in the centre, and all that Vivid tightness allowing the kick drum to smack through the central scrum, over which the vocals emerged sounding engagingly real.

Female vocals were equally well served: Diana Krall was real and perfectly poised out in front of the mix singing 10CC's *I'm Not in Love*, while Taylor Swift on *Cruel Summer* sang out clear on the verses, though recessed enough on the choruses to again encourage us to turn things up higher, to get her voice sounding real, and then the music thumping and immersive. This was something of a characteristic which emerged: at lower levels vocals could drop back in the presentation, perhaps the level of resolved detail in the rest of the mix had this effect, but the answer was always the same: turn it up to get the vocal sounding real, and the surrounding music would just burst into even greater life.

When we did this with *Getaway Car*, the S12s again revealed their available bass by rolling out the fundamentals on the powerful choruses — though again, to their best when they were playing nice and loud.

The reason we could keep turning up the Kaya S12s is because they remained so solid and audibly free of distortion. We had them at levels where lesser standmounts would scream and we'd have to drop them lower. Such is the balance here that you simply don't realise how loud they are running. It's great! If you audition a pair, we recommend you settle in, then nudge and nudge them up, and take the time to enjoy them loud; it's what they do best.

Beyond music

We had the S12s for about a month, and for part of that time we had them connected to our TV audio; they looked spectacular flanking the TV even with their rubber feet on a TV bench, while they will surely qualify as artworks in their own right when freestanding on their bespoke curvy supports flanking a wall-mounted screen.

We ran the Bowie doco *Moonage Daydream* on Netflix, and the G12s made it all so clear — magnificent and musical, wide and involving, diamond-sharp and again tight, tight, tight. This snap was doubly evident on the beats and rolling rises that chart the soundtrack of *Hiphop Evolution*, where Grandmaster Flash, Eddie Chiba, Kurtis Blow, even soundtrack taken from old videos sounded crisp and kicking. Tonal accuracy and an ability to play loud without distortion benefits TV and movies just as much as music, so don't hesitate to use the Kaya S12s in such a dual role.

Indeed there's a Kaya 35 centre speaker, so with a suitable subwoofer you could have a whole Kaya home cinema set-up of gleaming bulbous speakers around the room; the clarity and kudos would be mega!

What didn't we like? Nothing! Only that if you listen to them at an ordinary volume, you won't be hearing them at their best. It's what they can do with a good amplifier playing at high levels which makes the Kaya S12 standmounts stand out musically, while their appearance certainly makes them stand out visually. Especially in tree-frog green.

Conclusion

Up for an audition of the Kaya S12? For God's sake turn them up. That's the level at which Vivid's design ideals are confirmed; it's where the S12s come to life, it's how they surprise, it's when their wonderful detail and soundstaging merge with a surprising sense of power and solidity of bass. Remember that their beauty is not merely skin deep; it lies within.

VIVID AUDIO KAYA S12

- Stunning clarity & detail
- Happy loud – and best loud!
- Unique Vivid design for speakers and optional stands

- No biwiring option

Price: $11,000

Drivers: D26 26mm alloy-dome tweeter, C100L 100mm alloy-cone mid-bass

Sensitivity: 85dB @ 2.83VRMS, 1m

Nominal impedance:
8 ohms (5.3-ohm minimum)

Quoted frequency range:
45Hz–25kHz -6dB

Dimensions (whd):
400 x 237 x 254mm (but curvy)

Contact: Avation

Telephone: 07 5580 3300

Web: www.avation.com.au

YAMAHA NS-2000A

STEREO LOUDSPEAKERS

Glossy, slim, sounding as gorgeous as they look, these floorstanders remind the world that Yamaha knows more than a thing or two about the art of loudspeaker design and manufacture.

Mention Yamaha to many people and they may think of motorcycles or pianos or even outboard motors. Those who know Yamaha's hi-fi and AV credentials may talk of their amplifiers, AV receivers or CD players. But Yamaha is perhaps lesser known for its loudspeakers — and yet the Japanese company has been building speakers for even longer than it has many of those other components.

You see, Yamaha's first electronic organ, the Electone D-1, was released in 1959, and it featured Yamaha's very own 'Natural Sound' loudspeakers. These drivers were subsequently developed into high-end hi-fi speakers bearing the NS-20 and NS-30 model names, released eight years after the electric organ and often claimed to be Yamaha's first 'Natural Sound' speakers. Both were three-way designs, with the NS-30 using a bass driver measuring 890 × 630mm (!) and the NS-20 using one measuring 680 × 500mm (also !), these very large and odd-shaped diaphragms being made, rather uniquely, from Styrofoam.

The model numbers took their initial letters from the 'Natural Sound' slogan and, as you can see from the model reviewed here, the company's speakers still do. In fact, Yamaha has used these two letters to name all of its hi-fi loudspeakers since 1967 (except for one, which we'll shortly revisit momentarily).

Material innovation

In the 50-odd years Yamaha has built hi-fi loudspeakers, it has scored more than its fair share of world-first innovations, including some which have since been adopted by other brands of loudspeaker manufacturers. One of the first and most significant was the company's use of beryllium to manufacture drivers in the Yamaha NS-1000 and NS-1000M models, released in 1974. Beryllium had been proposed as an ideal cone/dome material for many years — its light weight, high rigidity and hardness meant that its sound propagation velocity was more than twice that of the titanium/magnesium/aluminium alloys being used in some speaker cones and domes in the 1960s. But beryllium is poisonous, very brittle and susceptible to corrosion — factors that made it impractical to use, until Yamaha modified an electron-beam vacuum deposition method that was being used to manufacture integrated circuits to instead create loudspeaker diaphragms that were 99.99% pure beryllium. Consequently, its NS-1000 and NS-1000M speakers could benefit from having midrange drivers and tweeters with beryllium domes.

Yamaha was also one of the first to develop a bass driver cone made exclusively from carbon fibre (previous 'carbon-fibre' cones developed by other manufacturers used carbon fibre in combination with various other materials). The company's first pure carbon-fibre bass driver was a 330mm unit codenamed JA3301, used in the very first NS-2000, released in 1982. The unique method Yamaha developed to manufacture this cone involved cutting a single carbon sheet that had its fibres

“McLachlan’s voice, her piano, Yves Desrosiers’ lap steel, Jim Creeggan’s bass: we could hear all of these elements clearly and with beautiful tonal accuracy...”

aligned in one direction into eight equal parts that were then rejoined in such a way as to form a cone where the fibres were radially aligned.

The spiralling costs of carbon fibre and beryllium forced Yamaha (along with other manufacturers) to look for alternative materials, in 2009 settling on polymer-injected Mica diaphragms (A-PMD, with the ‘A’ standing for Advanced) for midrange and bass drivers, with aluminium-dome tweeters using a unique design Yamaha called ‘DC Diaphragm’. This design physically integrated the tweeter’s dome with its voice coil — another first. These new technologies were first seen on the Yamaha Soavo-1 and then again on the Soavo NS-F901. (As you might have just guessed, the Soavo-1 were the Yamaha speakers without the letters ‘NS’ in their model name, although as their full name was actually ‘Soavo-1 Natural Sound Speaker System’, they didn’t break entirely with tradition!)

Design & build

There’s a school of thought which says that for the most cohesive tonal quality across the entire audio band, it’s best to use drivers with diaphragms made from the same material. With its new NS-2000A design, Yamaha seems to have taken its design playbook from this very school, as the diaphragms of all four of each speaker’s drivers are made from exactly the same material: a blend of wood fibre and Zylon that the company calls a ‘Harmonious Diaphragm’. The wood used is from the same spruce used to make the soundboards for Yamaha’s grand pianos. The company says that using the same spruce/Zylon material for the diaphragms across the NS-2000A’s drivers “ensures accurate, faithful tonal expression throughout the entire audio spectrum, making the harmonies of the sound stand out and the music richer and more beautiful.”

Zylon is an extremely strong synthetic polymer (its chemical name is ‘p-phenylene-2,6-benzobisoxazole’... so you can see why everyone calls it ‘Zylon’) that is claimed to have an acoustic velocity comparable to that of beryllium and a tensile strength that is 1.6 times higher than Kevlar. (We gather that the parachutes used by SpaceX spacecraft have shrouds made from the material.) Yamaha previously used Zylon in its NS-5000 loudspeakers, though there it vapour-coated the Zylon with a Monel alloy.

The two bass drivers in the NS-2000A are identical and have diaphragms that are almost — but not quite — cone-shaped. Yamaha specifies their diameter at 160mm. If Yamaha had used just a single driver to deliver bass, rather than sharing the load over two drivers, it would have required an overall diameter of around 210mm.

Yamaha is using a natural rubber for the driver suspension (roll surround), which is impervious to the ‘rot’ that affects foam roll surrounds and is also more temperature-stable. The mounting hardware for each driver is concealed behind a black plastic dress ring.

The midrange driver is a spruce/Zylon dome measuring 75mm in diameter and suspended by a surround that appeared to us to be made of doped fabric. Using a dome as opposed to a cone for a midrange driver comes with both advantages and disadvantages. The dispersion pattern more closely resembles that of a dome tweeter, and the frequency response can extend higher than that of a cone, allowing it to take some of the workload from the tweeter; the crossover frequency between midrange and tweeter can be higher, too, moving it to a region where the ear is less sensitive.

One disadvantage, however, is that the low-frequency response of a dome midrange is more limited than a cone design, meaning the crossover between bass and midrange needs to be a little higher than usual.

The NS-2000A’s midrange driver has a ‘resonance suppression’ (R.S.) chamber behind the dome that absorbs sound that might otherwise reflect back through the dome and interfere with the primary wavefront. Yamaha developed these so-called ‘R.S. Chambers’ when it designed the NS-5000, stating that they “eliminate the need for a large quantity of sound-absorbing material inside the enclosure that tends to smooth the frequency response of each speaker unit and might degrade minute nuances.”

Back when the NS-5000s were designed, Yamaha had only patents ‘pending’ for these resonance suppression chambers; it appears those patents have now been granted. According to Yamaha, those inside the NS-2000A speakers “are mounted on the back of the tweeter and midrange units... two specially-shaped tubes that cancel unwanted tube resonance generated behind the diaphragm, without relying on conventional sound-absorbing materials.”

The dome midrange driver is surrounded by a very large, slightly concave black plastic dress ring that we assume serves not only to hide the mounting hardware but also as a horn to improve the efficiency of the dome as well as a lens to control its dispersion.

Yamaha says the NS-2000A’s tweeter has a 30mm dome; it looks perhaps closer to

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35mm. The tweeter's material also seemed 'softer' than the midrange; Yamaha may be using the same two materials here but in a different ratio. But like the midrange, it too has its own resonance suppression chamber and a (smaller) plastic dress ring/lens.

The crossover frequencies between the drivers are specified at 750Hz and 3.5kHz, with Yamaha saying its adopts the highest quality crossover parts, including MCap Supreme Classic capacitors from Mundorf of Germany, along with a huge woofer coil.

The NS-2000A towers are, like almost all Yamaha's loudspeakers (post the NS-1000/M), bass-reflex designs. The bass-reflex port is located at the rear of the cabinet, close to the base and immediately above the two multi-way speaker terminals, which are made from pure brass. While it might have been nice to have two sets of speaker terminals, to allow bi-wiring and/or bi-amping, we can live with the provision of just a single set.

As for the port, it appears to use the same 'twisted flare' design found on the flagship NS-5000 to prevent port noise.

As you would wholly expect from a company that is renowned around the world for the quality of its pianos, Yamaha has paid the same attention to the quality of the finish on NS-2000A's cabinet; the gloss-black painted finish is identical! The outrigger feet at the cabinet base which improve stability are also better-looking than most and come with two different sets of feet for carpet or solid floors.

Listening sessions

Bass is important. It's the reason some people much prefer floorstanders over standmounts: more bass, deeper bass, better bass! The weirdly satisfying sounds on the first track (*The Hidden Camera*) of Photek's album 'Modus Operandi' is a good track for testing bass, due to being spare and sparse. The double-bass and drums are cleanly recorded, while the electronic sounds that alternate between foreground and background (this is Rupert Parkes, after all!) make the sense of acoustic space all-pervasive. We found the bass reproduction to be both deep and clean, so it was a win-win for the NS-2000A on that front.

We spent time listening to James Blake's self-titled debut album, much of it playing *Limit to Your Love* over and over, where the fragile vocals and simple piano chords soon give way to deep sofa-shaking bass that rattles around at the bottom of the register.

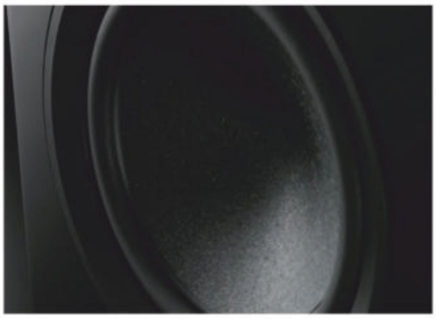
"Whether your kit can deliver the goods will quickly become apparent," says WHAT HI-FI?'s Joe Cox of this track (one of his favourites to test with). It became quickly apparent that the Yamahas could indeed deliver the goods easily and in spades.

If loudspeakers can't accurately replicate the sound of an acoustic piano, they shouldn't be on your auditioning list. We often audition using Erik Satie, but sometimes also his heir apparent, Canadian composer, pianist and singer/songwriter Jason Charles Beck, better known as Chilly Gonzales (or if you're a real fan, Gonzo). He seems to have studied showmanship under Salvador Dali. Listening to the warm, well-recorded piano sound on his sensibly (if unoriginally) named album 'Solo Piano'

No biwiring here, but pure brass binding posts.

Yamaha's 'resonance suppression' chambers.

All four drivers use wood fibre and Zylon.



had us smiling constantly, not only because the NS-2000As were delivering the piano sound so well but also because the music is so funny and spiritually uplifting. Listen to how sonically neutral the sound is across the 88-note span, and to how accurately the NS-2000A speakers reproduce the very highest three of those keys.

Female vocals are also a good test for a loudspeaker's accuracy, but many Australian audio reviewers overlook homegrown talent in favour of the usual foreign suspects. We turned to our very own Sia Kate Isobelle Furler, an Adelaide native who has a voice (and vocal range) most singers would kill for, not to mention a talent for songwriting that has seen her work with Beyoncé, Kylie Minogue and Rihanna. We listened to '1000 Forms Of Fear', with its piano versions of her hits *Chandelier* and *Elastic Heart*; the NS-2000As made her sound so good that Yamaha's engineers might even have engineered a little 'magic' of their own into the frequency response to improve the sound of vocals.

Sarah McLachlan is another regular during reviewing sessions, especially her best album 'Surfacing' — even the slow, dirge-y tracks! — where the sound quality is exemplary: McLachlan's voice, her piano and acoustic guitar playing, Yves Desrosiers' lap steel or Jim Creeggan's double-bass. We could hear all of these elements very clearly and with beautiful tonal accuracy through these Yamahas. The deep bass effects on *I Love You* were particularly spectacular, as were the ping-pong left/right channel effects on *Witness*. Pierre Marchand perhaps overdid the reverb on McLachan's voice for *Angel*, but there are side benefits to the excess, in that you can hear the way the NS-2000As deliver extreme highs and echo-ey atmospherics.

And just listen to the ability of the speakers to create a full, wide, depthy soundstage for *Black & White* while still maintaining a tight focus on the central image. This shows also that Yamaha's team keeps a very tight rein on quality control by ensuring that all of the drivers are perfectly matched before they're installed in their cabinets.

Verdict

Yamaha's NS-2000A floorstanders tick many boxes when it comes to performance. Bass extension: tick. High-frequency extension: tick. Midrange smoothness: tick. Their electrical efficiency is such that they will work well with even low-powered valve amplifiers, yet they also have the power-handling capacity to deliver the kind of volume levels you may need in a large room. And we're going to guess that your other half will tick the box marked 'domestic acceptability', because they're not only a room-friendly size but also look absolutely gorgeous.

YAMAHA NS-2000A

- Fabulous sound with impressive bass extension
- Gorgeous finish
- True three-way design
- No bi-wire facility

Price: $9999

Type: Three-way bass-reflex
Drivers: 30mm tweeter dome, 80mm midrange dome; 2 x 16cm (6.5-inch) bass cone
Quoted frequency response: 34Hz–65kHz (–10dB)
Sensitivity: 88dBSPL
Crossover frequencies: 750Hz/3.5kHz
Nominal impedance: 6 ohms (min 3.5 ohms)
Dimensions (HWD): 113 x 33 x 45cm
Weight: 32.8kg
Warranty: Five years

Contact: Yamaha Music Australia
Telephone: 1800 805 413
Web: au.yamaha.com

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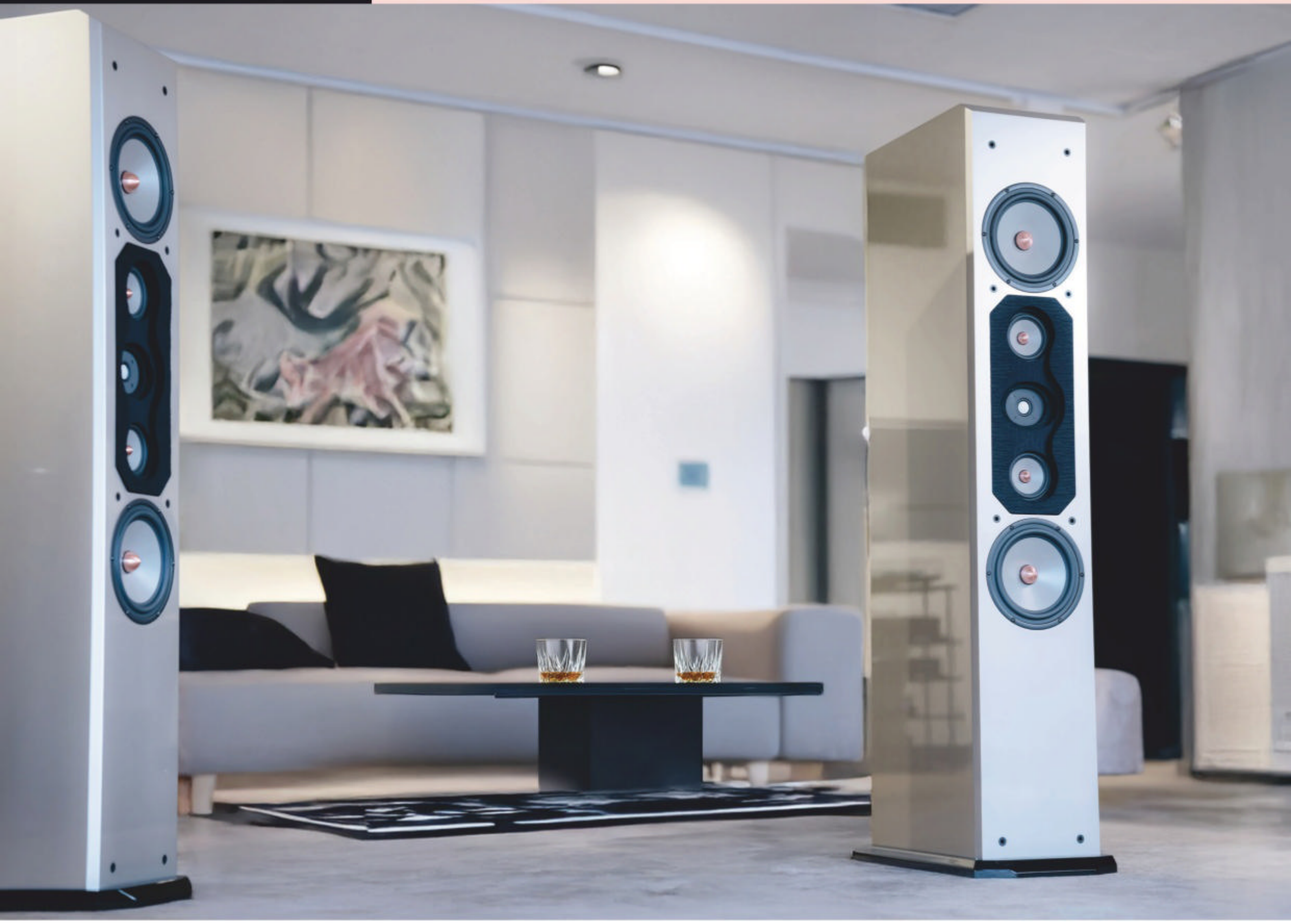

VAF SIGNATURE i93 MKV

STEREO LOUDSPEAKERS

Meet the latest version of these Australian speakers that aim for the ultimate reproduction, honouring the artists and engineers who create music, to faithfully reproduce their recordings with true-to-life accuracy.

It's no minor task to create a multi-source audio reproduction system that harmonises tonal quality, timing, accuracy, imagery, resolution — and the listening environment. Whether or not you're familiar with technical terms like 'linear phase', 'phase distortion', 'power response', 'transient reproduction' or 'Hilbert transform', it's crucial to recognise the challenges facing speaker designers like VAF's Nick Ataliotis and his peers, who have devoted their lives to perfecting these qualities and bringing their benefits to real-world products.

VAF's design manifesto for its Signature i93 MKV was to honour and respect the artists and engineers who create music, and to faithfully reproduce their recordings with pure, true-to-life accuracy — no artefacts, no colouration — to make a full-spectrum loudspeaker with wide, deep soundstaging and three-dimensional pin-point stereo imaging.

The engineering challenge lies firstly in balancing the physical limitations of multiple drivers with drivers, crossovers, cabinets and the environment in which they sit, and then in ensuring that the combined output from the drivers reaches your ears with the precision required to optimally reconstruct the musical elements of a recording.

In large loudspeakers such as the VAF i93, which aim to produce high quality and levels of sound, the use of many drivers — 10, in this case — demands an extraordinary level of attention to detail, not to mention effort.

Design and features

Even before removing the grilles from these high-end loudspeakers you're greeted with a visual testament to the designer's meticulous effort and investment. The array of physical features isn't just for show; they represent sophisticated engineering aimed at achieving unparalleled fidelity.

One standout element is the attention its engineers have paid to horizontally offsetting the drivers. This is an attempt to localise their acoustic source points onto a specific manifold so that at the listening sweet spot there is minimal difference between the signal's time of flight, from where it is generated, to where it is recombined and perceived at the ear.

Driver time alignment is one of the many necessary considerations to achieve minimal phase disruption, which in the ideal case facilitates a linear phase response, where no part of the audio spectrum is delayed differently from any other part. The more linear a system's phase response, the more precisely waveforms (particularly those containing sharp edges) can be reconstructed with the exact same shape when viewed in the time axis.

The compromise is that while staggering the drivers is relatively easy, as is the use of symmetrical driver arrays, designing practical crossovers to ensure phase linearity is not. Such crossovers require very shallow degrees of roll-off and demand that drivers also perform exceptionally well in regions outside their typical band range, which very few can pull off without issue. Also, the designer may have to sacrifice tonal optimisation or the addition of other networks that address imperfect driver characteristics in order to prevent crossover phase disruption.

How relevant is perfect phase performance? As with many things in life, balance is required. Attributing too much importance to this will risk compromising other performance parameters. Historical work by Floyd Toole (at Canada's National Research Council) suggested that, while technically appealing, prioritising accurate waveform reproduction through accurate phase and flat amplitude response offers, in practice, very little when scored by listener sensitivity. Toole suggested that amplitude response and tonality are more relevant parameters in terms of listener experience, as are power handling, distortion, driver break-up region and off-axis and power response.

A major change for this generation of i93 is the SEAS woofers' upgrade to magnesium alloy. Indeed, it marks the model's first driver change since 2009. This new material has been adopted to ensure the woofers match the other drivers both tonally and visually, and the new woofer had to be repositioned 15mm forward to achieve proper time alignment with the midrange drivers and the tweeter, which is a custom SEAS OEM magnesium alloy unit.

Employing all-magnesium drivers presents challenges, particularly with inherent break-up spikes outside of their passband. Pure first-order crossovers were avoided for some of the reasons we've already discussed. The primary goal was to harness the benefits of magnesium drivers, such as fine resolution, clarity and detail, while avoiding the fatigue often associated with metal-only drivers. VAF says that achieving this required approximately 30 iterations of crossover design, measurements and tweaks, along with hundreds of hours of listening over nine months. The final i93 MKV employs full three-way crossovers, with large hand-wound air core inductors and SCR capacitors in the critical signal paths, and all components directly connected without requiring circuit boards.

HIGH
-
+
MID
-
+
LOW
-
+
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The black felt layers surrounding the tweeter and midrange drivers are acoustically functional and reduce unwanted baffle reflection and diffraction, even if we think they might be slightly aesthetically improved. The two thin sheets on top of one another are able to move and warp a little, allowing the felt edge to protrude ever so slightly above the baffle surface, so it would be nice if it had either a very low profile or some contoured-edged frame.

At the rear, the large connectors allowing for separate three-channel wiring to the amplifier are presented on a black gloss panel. This is also where you'll find the bass-reflex vent.

The vent was clearly finessed in many areas, yet seems less optimised than it perhaps could have been, lacking any obvious attempt to minimise vent-induced turbulent noise through edge contouring or extension flare. There was perceivable vent chuffing when standing next to the speaker, though not to a level that made it obvious during normal use.

At high volume levels, the cabinet appeared to be highly inert, with no perceived panel vibrations. VAF states that the cabinets are constructed by a local, third-generation cabinet/furniture maker in the Adelaide Hills. They use MDF up to 54mm thick and extensive cross bracing throughout. Standard finishes are genuine timber veneers such as Black American Oak, Tasmanian Blackwood, Australian Jarrah, Feature Eucalypt and American Walnut, with a satin black front baffle, backplate and base. Painted/gloss finishes are available on request, too, and on our review pair, the paint quality was quite superb, the metallic silver undeniably stunning and flattering. The speakers gave off a 'Bentley'-prestige vibe.

Listening sessions

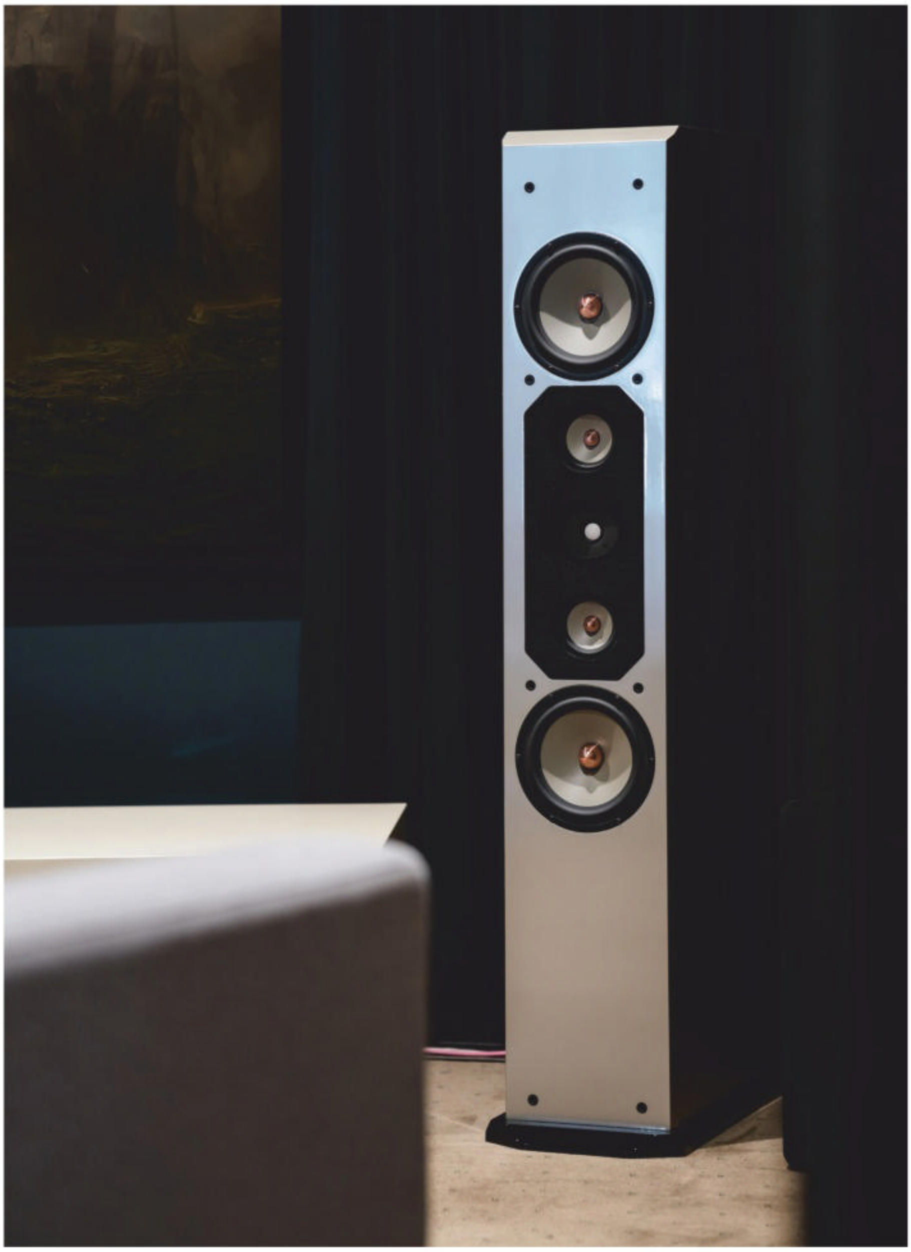
We first measured the VAF speaker, carried out at 2.5m to the optimal time-aligned position, centred and diagonal to the major axis of a roughly 8m × 3.5m listening room.

Several things jumped out immediately. Firstly, the frequency response is flat — very flat — particularly in the midrange and crossover regions, in accord with VAF's desire for accuracy.

Also, the bottom end extends well below human hearing limits, with a well-damped roll-off leading to accurate bass transient reproduction. A lot of bass could be experienced and felt, not just heard.

The top end rolls off a little earlier than many loudspeakers, at about 16kHz, but this was intentionally introduced in order to get the best out of the tweeters and reduce the high-frequency break-up associated with all metal domes. This was a significant area of optimisation requiring a great deal of listening and tweaking, according to the VAF designer.

But perhaps due to other attributes of the magnesium tweeter such as power response, we did not find that this diminished the sparkle of the top end. We never tired of the tweeter, yet it could deliver an astonishing brilliance where required and, on some cymbals, a unique sense of a live performance brassy 'zing'. The midrange sounded revealing and natural, too, with vocals coming through



slightly forward of centre in a highly precise and articulate soundstage.

A loudspeaker with this level of technical priority may not always be entirely music material-friendly. The VAF i93 certainly tends to favour certain content over others when evaluated, though not always predictably. Some material presents itself unexpectedly: your favourite pop music, for example, might sound surprisingly different — perhaps more akin to a live performance. Other material could sound delightfully renewed and articulated and in line with your expectations.

This loudspeaker isn't designed to necessarily sound appealing with all music; its philosophy revolves around resolving everything, no matter how subtle, within the signal it is handed from the connected system electronics. To this end, the i93 MKV demands very good accompanying equipment and a powerful amplifier. They will reveal where minor changes to your set-up are contributing subtle audible differences.

In our system, Sarah McLachlan singing *Blackbird* at moderate volume was a treat of articulation. Soundstaging was accurate and extended well outside the span of the speakers' positioning. With eyes closed and moving forward to the 2.5-metre distance for which the drivers are ideally time aligned, there was a slight but noticeable increase in transparency, the exact reasons for which may be multifold.

The bass was tight, very deep and in some places also sounded like it originated from outside the room. Overall, McLachlan was present and very natural. In two particular places within the track, she delivers with a subtle strain in her voice, and that wasn't masked from view.

This led us to try Grace Jones's *Slave to the Rhythm*, a classically challenging track with a tendency to be a little hot in some places. Bongos, bells and whistles were startling yet controlled, while the whole performance rang out with a live presence that made us regret never having attended a Grace Jones concert.

Verdict

While pricing for the Signature i93 MKV starts at $21,999 (for a Black Oak pair, including crates and shipping nationwide) and will put them out of reach for many people, we believe these loudspeakers are still good value for money compared to a lot of the competition at this end of the market.

They achieve what the designer set out to accomplish, faithfully reproducing recordings with utmost accuracy, devoid of colouration, within a deep and wide soundstage that nails stereo imaging.

Moreover, this has not been achieved by retraction: the i93 MKV offers an abundance of power, deep, clean and transient bass, and the ability to convincingly reproduce a live concert while appealing to even the most refined and classical hi-fi enthusiast. Exciting to behold and a delight to listen to, their ability to project such an impressive prestige while also integrating relatively discreetly into an environment is a great step forward in getting large high-performance speakers into homes.

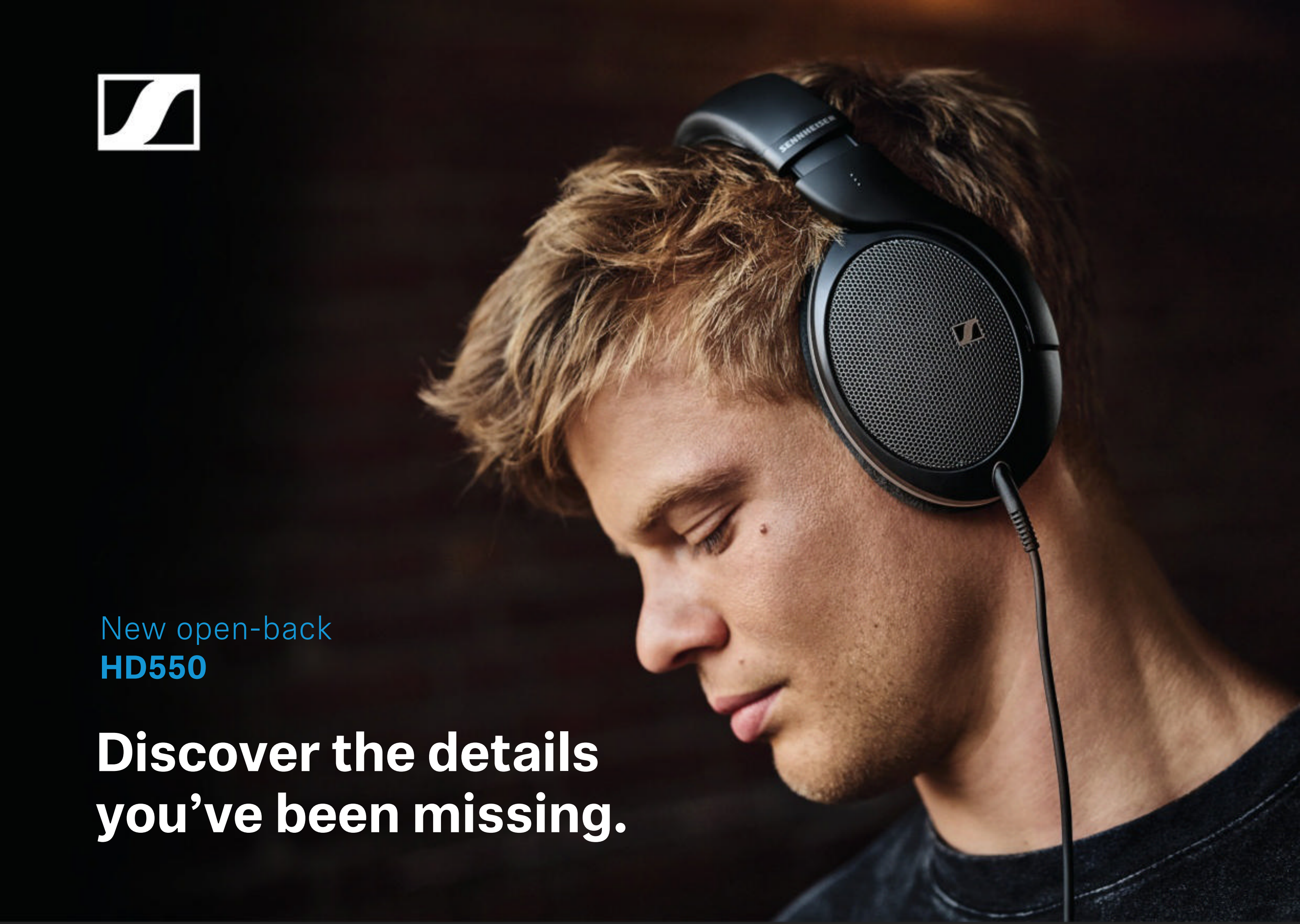
VAF SIGNATURE i93 MKV

- Delight to hear and to see
- Thrillingly accurate
- Abundance of power

- Not cheap!
- Not forgiving of poor recordings

Price: from $21,999 (pair)

Frequency range: 17Hz-22kHz
Frequency response: 21Hz-19kHz (-2dB)
Nominal impedance: 6 ohms
Sensitivity: 89dB @1W/1m
Dimensions (HWD): 151 x 31 x 57cm
Weight: 98kg
Contact: VAF Research
Telephone: 08 8363 9996
Web: www.vaf.com.au



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Bowers & Wilkins

BOWERS & WILKINS ZEPPELIN PRO

WIRELESS STREAMING SPEAKER

Bowers & Wilkins' latest Zeppelin 'Pro' wireless speaker may be the greatest Zeppelin yet: the sound is improved with in-house drivers, and the price is now highly attractive against pricier competitors.

"In consideration of our hi-fi orientated readers, among whom we count ourselves, we have rarely included any iPod docks in this magazine…" So we wrote, rather snootily, back in 2007, when reviewing the first Zeppelin, while also citing the compressed 128k MP3 audio file as having *"entered the audiophile's crosshairs as leading hate-object, rightly so"*.

But back then we made an exception for the remarkable Bowers & Wilkins Zeppelin, "the most ambitious and expensive standalone speaker dock yet released", we wrote 18 years ago, though at the time it was memorably rivalled by Australia's own VAF Research, which had a Microsoft Zune dock called the Octavio. But alas the Zune did not survive, while the iPod soon ruled the world, sending the Octavio into obscurity, and the Zeppelin into legend.

Since then we have reviewed a Zeppelin Mini, a Zeppelin Air, something called the 'Z2' which merely referenced the Zeppelin's iconic top curve, and a Zeppelin Wireless.

Most recently was the 2021 version which was called simply 'Zeppelin' — the 'Air' and 'Wireless' tags presumably judged meaningless in a world where everything is expected to stream. Unusually, we didn't get on with it: we found it tonally unsatisfying, though this view did not accord with many other reviewers at the time. No matter, because now a new Zeppelin is aloft, the Zeppelin 'Pro'. Can it renew our affections? (Spoiler: yes it can, entirely!)

Build & drivers

One thing which has changed, not within but around the Zeppelin, is the market for one-box systems. Back in 2007, the iPod-docking Zeppelin sold at $999, making it the priciest dedicated dock yet, other than certain valve-laden creations then in the more esoteric edges of the iPod world.

But today we have the likes of Bowers' stablemate Marantz retailing one-box systems priced up at $6500 and $9500. By comparison the Zeppelin now looks far less extravagant a purchase, almost a candidate for sounding the bargain siren! The 2021 Zeppelin was and still is priced at $1099 (sometimes discounted back to its original $999), while this new Zeppelin Pro arrives at a list price of $1349 — not bad after nearly two decades of inflation, and with new liveries for this Pro edition to encourage you further. There is sleek Space Grey and a subtle Solar Gold for the upgraded acoustic grille mesh cover, now less than 1mm thick and acoustically transparent, says Bowers & Wilkins, also durable and stain-resistant, while looking nicely luxurious, making the new Zeppelin Pro even more an *objet d'art* than its predecessors.

This fabric covers a hexagonal mesh now constructed in three sections of different thicknesses, which Bowers says reduces the interference of different frequency bands. You also get to pick from a wide range of colours for the LED light which is under the front of the Zeppelin: a choice of 15 colours, indeed, while also varying brightness. This is not a useful light at all — it imparts no information with its colour (as does the questionably back-facing multifunction key on the top); the bottom light just creates a little pool of illumination below the Zeppelin and so accentuates its lower curve. It's a little vanity light. We settled on natural or orange light, at low intensity.

One button change up top on those rear-facing buttons (they're inconvenient but hidden to favour style over utility): Alexa voice control has gone, its button switched for a Bluetooth pairing button. Makes sense to us: Alexa and Google Voice both seem about as dumb as a box of frogs now we're in the age of properly interactive AI, and we fully believe B&W's assertion that hardly anyone ever used the Alexa function on the 2021 Zeppelin.

The most crucial changes lie within. Although the Pro is the same size as the

2021 Zeppelin, the crucial tweeters and midrange drivers have both been replaced. The tweeters mounted at the far edges of the enclosure now boast titanium domes, as found in the latest generation of the company's 600 Series loudspeakers, while the 90mm midrange drivers now use Bowers & Wilkins proprietary Fixed Suspension Transducer technology, with increased cone damping (a special acoustic PVA coating on the inside of the diaphragm), again leveraging the methods used in the company's full-sized speakers.

The 150mm 'subwoofer' driver remains mounted centrally, with improved woofer excursion allowed by cabinet bracing at six points, along with decoupling points to mitigate vibration and mechanical noise, and four symmetrical venting ports around the woofer to improve efficiency and eliminate airflow noise.

The cabinet as a whole isolates each of the left channel, right channel and bass drivers in their own acoustic chambers, and each set gets its own dedicated stereo (presumably class-D) amplifier, totalling a quoted 240W, while the internal DSP tuning of the Pro has also been adjusted to make the most of the drive unit changes.

There's one revealing note in the literature, under the heading "Inhouse driver production", saying that "Bowers & Wilkins now also manufactures the speaker drivers for Zeppelin Pro, including tweeters, FST midrange and bass drivers" — which kinda implies that they did not do so in previous Zeppelins, and were buying in drivers from elsewhere. If so, that's a huge change for the new model, and may explain the very different sound of the Pro.

Streaming and set-up

The Pro's back panel accommodates merely a mains cable and a USB-C service port, so that all music is sent to the speaker wirelessly. The easiest way to do this is to use Apple's AirPlay 2 streaming from an Apple device, or Spotify Connect from any device; this requires no change in your streaming habits, just pointing your phone, tablet or laptop to play via the Zeppelin Pro.

There's also Bluetooth 5.0, offering not only the basic SBC and AAC codecs but also aptX Adaptive, which will allow Android users to push upwards in Bluetooth quality to a maximum of 420kbps, about half the rate required for lossless CD quality. Google Cast (aka Chromecast) is not here supported, and nor is Tidal Connect, a disappointing omission leaving Tidal users little choice but to work within the Tidal implementation of Bowers' own 'Music' app (screenshots below). This can be used to stream from Tidal, Deezer, Qobuz or Amazon Music, and we'd advise you use it, since you can then get full quality (including hgh-res streams) to the Zeppelin Pro, whereas using, say, the normal Tidal app via AirPlay streaming will reduce quality to just 256k AAC transmission quality, which is Apple's current limitation on AirPlay 2. This will also be the quality limit here on playing your own files stored on a device, as the Music app has no UPnP implementation (as there is on most HEOS products from Bowers & Wilkins' sister brands Denon and Marantz), to get your own files playing at their full quality.

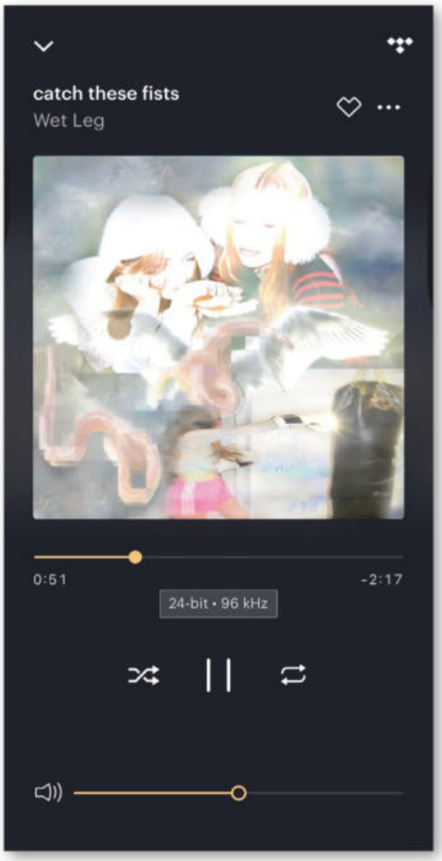
The Music app is also used here to get you connected: search and find the Zeppelin Pro, get it onto your Wi-Fi, perform a software update, and so get it ready to receive your tunes. This all happened for us quickly, if not immediately — the app didn't see the Zeppelin, nor did the 'Multifunction button' on the back side of the Zeppelin pulse amber as we were told it should; we found it to be solid amber, then it went blue when we touched it, and the unit appeared suddenly available to the app. It's not what the manual says to do, nor the app, which told us it had lost connection during the Wi-Fi process and we should start again. But we ignored that message and found the Zeppelin Pro was indeed now connected and then worked forever after. Ah, the joys of Wi-Fi connection and operation.

The subsequent software update (to version 2.4) was quite a long one, taking some 15 minutes before a short chime and the arrival of a pink light under the front of the Zeppelin indicated we might resume our listening and review processes.

Listening sessions

And so to the tunes. Spotify Connect is very easy: open Spotify, play a tune, direct it to the Zeppelin Pro. With no Tidal Connect available here, we put our Tidal details into the Bowers 'Music' app and then played from within the Music app; that's how we listened primarily, using Tidal.

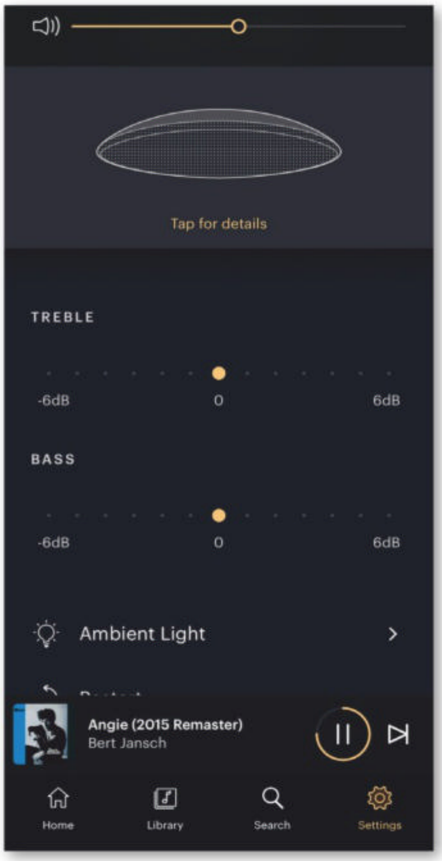
We were quickly delighted. All the characteristics we had disliked on the 2021 Zeppelin were notable by their absence. Our colleagues at What Hi-Fi? in the UK have accurately identified the changes when they describe the Pro as "more authentic and natural... the treble has a more pleasing, slightly rolled-off sweetness, whereas the bass sinks to powerful new depths without



catch these fists
Wet Leg

0:51 -2:17

24-bit • 96 kHz



Tap for details

TREBLE
-6dB 0 6dB

BASS
-6dB 0 6dB

Ambient Light

Angie (2015 Remaster)
Bert Jansch

falling into that fatal trap of becoming a blobby, booming mess."

That's it in a nutshell. The Pro sounds like a Bowers & Wilkins speaker should: no tricks, minimal pushing of lower frequencies via DSP, more of the drivers' inherent characteristics.

Especially in the bass. It's nicely natural, unforced, if sometimes quite large on modern material: full but not overdominant, for example, on Wet Leg's *catch these fists* (from Tidal at 24/96), delivering a good solid punch to the kick drum, while the vocals sailed clear above things even on the dense and thrasher choruses.

Patricia Barber's *Let It Rain* (Tidal, CD quality) showed that bass could get a little nebulous as it descended, but still balanced and tuneful, underpinning the impeccable piano and vocal recording here in a lovely rendition from the Zeppelin Pro.

And while some ultimate depth and gut kick is inevitably curtailed from a unit of this size compared with bigger hi-fi speakers, the Pro still sounded impressive on the Nils Lofgren Band's live '*Bass & Drum Intro*', not really shelving off much even as the bass got down to its bottom E. The unit's frequency response is listed as 35Hz to 24kHz, but without a stated envelope (is that at -3db, or -10dB?). But we'd mark its best achievement as being that no matter what the original material, modern or bass-heavy, 1980s bass-lite, folk, dub or classical, there was always a pleasing balance across the spectrum: no dominance down low, no shrieking up high.

This is just as well, since EQ tweaking in the app is limited to ±6dB of treble or bass. You'll achieve just as much by moving the Zeppelin Pro into different positions, and there's also a slight variance with distance, perhaps because the left-right drivers are angled slightly upwards in the cabinet, "for an airy sound", says Bowers, though also a less direct sound is you have the unit in a higher rather than lower position.

We tried some songs that had failed on the 2021 Zeppelin: two tracks where bass drums had gone 'thwack thwack' like a wet cardboard box were now much solidified. The only repeat fail was Led Zeppelin's *When The Levee Breaks*, which still sounded weak and insipid. For everything except Zeppelin, however, the Zeppelin Pro seems to have pitched its presence perfectly.

We also used it as a TV speaker. This is tricky, because there are no inputs: you can't plug in your TV via HDMI, optical or even analogue. And you'll need the Zeppelin centrally below your screen. But many TVs can send audio via Bluetooth, admittedly with the peril of lip-sync issues, and we used an AppleTV 4K media player sending its audio across via AirPlay. This worked reliably, using a phone with the Music app open to control volume. So in the right system configuration, the Pro might double as a sophisticated soundbar.

Verdict

Nearly all the possible streaming methods to the Zeppelin Pro are significantly sub-CD quality, except when using the 'Music' app. This is doubly important to know given there are no physical inputs at all on the Zeppelin Pro: it's a streamer, but despite its 24-bit capable DAC, it's only a medium-resolution streaming device — other than when using the Bowers Music app to access a full-resolution streaming service.

All the more remarkable, then, that Bowers has coaxed such an enjoyably smooth sound from the Zeppelin Pro even when using those lesser streaming methods, and a crisp hi-fi-like sound with higher-level signals via its 'Music' app. Whereas the previous Zeppelin speaker seemed tuned to go for some superficial doof-doof delivery, the Pro restores the balance to sound richer and smoother; it suits all manner of music, as well as voice content on podcasts or audiobooks.

Meanwhile its nearly static pricing among a rising tide of more expensive systems makes the Bowers & Wilkins Zeppelin Pro now look like a remarkable bargain for such a sophisticated streaming speaker. We reckon the Zeppelin concept is flying high once again. BB

BOWERS & WILKINS
ZEPPELIN PRO

- Smooth sound across genres
- Drivers much improved
- Great looks, good price!

- No inputs, streaming only
- No Tidal Connect

Price: $1349

Drivers: 2 x 25mm titanium double-dome tweeters, 2 x 90mm FST midrange; 150mm woofer

Inputs: Spotify Connect, AirPlay 2, Bluetooth 5.0 (SBC, AAC, aptX adaptive), B&W Music app, USB-C (service only)

Dimensions (whd): 650 x 210 x 194mm

Weight: 6.5kg

Contact: Bowers & Wilkins Australia
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JBL
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FLIP7
CHARGE6

JBL ON THE GO

FLIP 7, CHARGE 6, TOUR PRO 3 BUDS, SOUNDGEAR FRAMES

Bluetooth speakers, earbuds & sonic sunglasses

Whatever style of portable playback you prefer, one company has got you covered. So here we investigate why JBL's portable speakers perform so powerfully, while also checking out other personal options for when you're on the go.

When people ask us for recommendations on portable Bluetooth speakers, there are a number of brands we might mention, but there's one we always come back to, and that's JBL. An astonishingly wide range and an exceptionally long legacy put JBL in the driver's seat for both music quality and competitive pricing, whether evolving established lines or delivering new tech.

The brand and the company around it have seen great changes over the years. It is part of the Harman International group, which has itself been part of Samsung for the last decade, which makes it a sister company not only to the South Koreans but to Harman brands like AKG, Arcam, Harman Kardon, Infinity, JBL, Lexicon, Mark Levinson, and Revel. Then we have the very recent news that Harman has just announced it will also buy Bowers & Wilkins, Denon, Marantz and the other brands which medical owner Masimo has now decided don't fit in a medical world. That's quite some collection of brands!

JBL, meanwhile, hardly needs such sister support. All on its own it creates every kind of loudspeaker, from the Bluetooth models reviewed here, up to pinnacles of hi-fi design such as the latest Everest and K2 loudspeakers, as well as high-end in-wall ranges from JBL Synthesis — so many products, indeed, that JBL comes to Australia via two different distributors, the higher-end arriving through Amber Technology, while Harman Australia brings the portable speakers, headphones, soundbars and even wearables, with JBL's new audio sunglasses. Let's take a look — and listen — to some current favourites.

JBL FLIP 7

Brand-new for 2025, the latest Flip takes JBL's Bluetooth speaker expertise to its next level, and does so at the same $170 RRP as the current Flip 6, though the latter already enjoys some substantial discounts.

JBL hasn't rewritten the rulebook here, but it has tweaked the Flip 7's sound while adding a pleasing host of new features, performance benefits and improvements to its build and design. That cylindrical 'burrito' shape still fits nicely in the hand or down the side of a backpack or travel bag, the built-in adjustable carry loop of its predecessor replaced by a choice of either a small fabric finger loop or a carabiner hook. The water and dustproofing rating is up to a mighty IP68, and its drop-proof credentials have also increased, with the rubber guards at either end slightly more beefed up.

A small change in controls includes a sort of paperclip-cum-triangle representing the Flip 7's new Auracast capabilities, the sharing technology which lets you pair two Flip 7s together in stereo (assigning left/right channels in the app), or to hook up multiple Auracast-compatible units in tandem via the JBL Portable app.

Battery life is up to 14 hours on a single charge, perhaps an extra two with 'Playtime Boost', which extends battery life by lowering the level of bass response.

As for the sound itself, the Flip 7 brings an updated tweeter dome design, while JBL also promises beefier bass than before thanks to greater power driving the Flip 7's woofer, as well as a new 'AI Sound Boost' optimising the output for a "bigger sound and deeper bass", without distortion. The Flip 7 also features wired and lossless listening for the first time via USB-C playback (though no cable for this is included, nor for charging).

The result is the best-sounding Flip there's ever been: a smoother, weightier and more robust-sounding performer than its predecessor. It brought so much heft and body to Muse's *Hysteria* that it made its sixth-generation ancestor seem almost malnourished by comparison. Larger models (such as the Charge 6 below) will naturally take things a step further bass-wise, but for a unit of the Flip's size, it's hard to complain with the musicality here: the subtleties of Jeff Buckley's guitar playing on *So Real* were communicated with remarkable accuracy and flair, an authenticity and clarity to Buckley's vocal stylings as he flits and flows from sultry whispers to his enthralling Qawwali wail, with more elasticity than on previous models.

The same skill drives Elliott Smith's *Ballad Of Big Nothing*, separating the varying levels of force on each of the great man's guitar strums, teasing out the rhythmic patterns.

No matter the track, the Flip 7 is capable of putting you in the picture with detail levels, bite and body which constantly surprise from such a small portable speaker, qualities that were only amplified by the addition of lossless audio via USB-C, a still more refined performance with more precision and texture. This is undoubtedly the most well-rounded Flip ever released, and it's another portable Bluetooth speaker triumph for JBL.

JBL CHARGE 6

The new Charge 6 is taking over from the Charge 5, and follows in those much-lauded footsteps admirably. It's expected to launch at $200, which remains a pretty reasonable outlay for such a robust and entertaining Bluetooth speaker. One of the things that always surprises us about the Charge model is just how balanced, subtle and controlled it sounds — a more mature presentation than you might expect from its rugged, burly exterior.

The sound of the new model benefits from a fresh woofer that promises deeper more powerful bass, while the algorithm-led 'AI Sound Boost' from the Flip 7 is here too, optimising the output in real time.

Does this mean the Charge 6 is now all about the bass? Not at all. The Charge 6 certainly sounds more powerful, but that muscle and authority is heard throughout the frequency range, not just in the lower end. The sound was clearer and more detailed than before, with vocals given extra solidity and textural depth; the highs soared with punch and a newfound sense of clarity. Meanwhile its portable credentials have been bolstered in similar ways to the Flip 7. It is more user-friendly and outdoors-friendly than before, with an impressively dunkable IP68 rating, and beefier bumper guards at either end of the speaker. The grille is now 100% recycled, and the body gains a nifty carry handle which makes the Charge 6 much easier to move around.

The control buttons now sit across two rows, including Auracast buttons; this

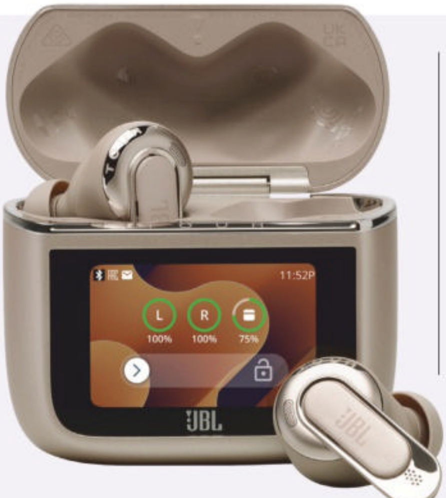
new Bluetooth functionality lets you pair two Charge 6s together for stereo sound, or to link up as many Auracast-supported speakers as you want. (Note this feature won't work with older non-Auracast JBL speakers such as your old Charge 5 or Flip 6, but you can, say, link a Charge 6 to a Flip 7.)

As its name suggests, the Charge 6 can double up as a powerbank for your smartphone, and has additional charge for its own battery life as well, given a healthy boost to 24 hours of juice (up from 20 hours), while enabling the Playtime Boost feature will give you an additional four hours of less bass-filled music.

As with the new Flip 7, the biggest surprise here is the addition of wired listening, allowing for lossless audio up to 24-bit/96kHz. And playing this way did deliver a considerable uptick in performance over the standard Bluetooth codec. Switched to wired lossless listening there was considerably less noise in the background, and more subtle depths to both detail and dynamic shifts.

But the character remains the same via Bluetooth. You won't be surprised to hear that the Charge 6 could go loud — much louder than you might expect from its compact dimensions. And the sound stayed stable as the volume lifted higher, the Charge 6 relishing the chance to stretch its acoustic wings and show us what it could really do. It remained characterful when listening at lower volumes, although that dynamic spark was just a little subdued.

Of course a portable Charge 6 won't deliver the full hi-fi sensibilities that can be reaped from a larger system. But as a portable speaker it fully shows the skills that have made JBL number one in this market. Improved and newly featured, the Charge 6 maintains this line's remarkably durable design, a 1kg package ready to survive all sorts of adventure and inclement weather while remaining hugely fun to listen to. We can highly recommend it.



TRUE WIRELESS TOUR PRO 3

For earbud users, JBL's True Wireless Tour Pro 3 flagship brings all the options, packed to the brim with features, starting with a dual system in each earbud which includes not just the usual dynamic driver, here nearly 11mm in diameter, but a second sound source: a balanced armature driver to deliver the higher frequencies. The buds come in either black or a 'latte' brown (shown) with a matching case — and this case itself is another key innovation. It is JBL's 'Second Generation Smart Charging Case'; it not only provides three recharges (adding 33 hours to the 11 hours initial life for the earbuds with ANC off), it has a 40mm-wide display, and touch controls which can be used to control music playback, noise cancelling level, the battery level of both the earbuds and the case, and to invoke spatial audio effects. It can save you retrieving your phone by showing select notifications.

A further feature is that the case itself can transmit audio to the earbuds: you can plug a source (we're thinking in-flight entertainment especially) into the case via analogue minijack or USB-C (JBL supplies cables for both use cases in the box), and you have the freedom to and listen with the relative comfort of in-ear buds.

Especially as you also have the noise cancellation to create an even quieter bed for your inflight movie, either adaptive ANC or one of seven manual levels. Smart Talk can mute any music when it detects you wanting to talk to someone.

There's also Head Tracking, which we rarely use for music but could be quite a bonus for those involved in the VR and AR spaces, and spatial audio, including an upscaling effect.

Given healthy competition at this price and below from the likes of Sony, Sennheiser, Apple, Bose *et al*, it's impressive that the JBL Tour Pro 3 not only loads up on options but provides fantastic sound, and that's the true path to our recommendation. The earbuds deliver a confident, solid performance that should suit most genres and most ears very well. The presentation was never in the slightest bit messy; heavy-hitting when required, but capable of delicacy when needed, real cohesion, with each layer granted space to do its thing. Premium True Wireless earbuds, then, with premium features and performance.

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JBL SOUNDGEAR FRAMES

Here's something different to end our mini round-up of JBL's portable joys: music coming from the wings of your sunglasses — what could suit Australia better? JBL's Soundgear Frames cleverly house electronics and speakers in the wings of a pair of sunglasses, thereby combining sun protection and headphone needs in a single handy package.

This idea is not entirely new, but JBL certainly brings its own level of expertise to the combo equation, and at $169.99, it does so at a more attractive entry point to the genre of sonic sunnies.

Besides, they bring some improved specs to the sun-and-sound party, with waterproofing and dustproofing rating to IP54 (thoroughly sweat-proof, spray-proof and even splashproof). The glasses themselves are rugged yet flexible, lightweight and hypoallergenic, with frames available in either round and square varieties and in multiple finishes. And because all the electronics lie in those wings, there's nothing to prevent an optician switching out the lenses for prescription ones.

Play time? About eight hours from a two-hour battery charge, says JBL, depending on playback level. And usefully a 10-minute charge via their USB-C sockets will add a good couple of hours of playback.

Note that we say USB-C 'sockets' in the plural: there is a connection on each wing (because the two have no connection through the rest of the frame), and JBL thankfully provides a split charging cable, so you can top up both wings at once.

As for how they work, there's no great mystery: they connect via Bluetooth with your smart device like any pair of wireless headphones or earbuds. The physical speaker units are ultra-thin 25 × 9mm rectangular units using a three-layer diaphragm; these are positioned some way down the length of the arms, with the audio exit point being just at the bend.

Whether this position (9cm from the front) matches your ear entry can have a great effect on the sound, which is a light 'open' sound anyway. With no covering of your ears outside, and no seal created to keep sound in or out, the Soundgear Frames leave you fully ambiently aware of everything around you, something JBL labels as 'OpenSound Technology', but with the downside that there is neither passive sound isolation nor effective active noise cancellation. So the Soundgear Frames are in no way going to replace a dedicated set of headphones for deep and immersive music. To a large extent that needs to be accepted as a limitation of the sonic sunglasses genre, since their openness inherently limits the level they can provide to your ear canals (plus, as you might expect, there is an awful lot of sound leakage).

Yet they were able to deliver music with adept imaging, and considering the nature of delivery and the size of the drivers, we were pleasantly surprised by their overall performance. A fairer comparison might be against bone conduction headphones, a breed of design which provides similar awareness by avoiding your ears entirely and sending vibrations through your cheekbones. The JBL Frames solution sounds far better than those. And as a clutter-reducing combo product bringing together music-making and sun protection, it's another remarkable slice of portable Bluetooth technology from JBL.

JBL FLIP 7

Price: $169.95

Drivers: 16mm tweeter, 45x80mm woofer

Bluetooth version: 5.4

Features: Auracast audio sharing, IP68 rating, lossless audio via USB-C, AI Sound Boost, stereo pairing

Battery: up to 14 hours (17.28Wh)

Dimensions (WHD): 183 x 70 x 72mm

Weight: 0.56kg

JBL CHARGE 6

Price: $199.95

Drivers: 20mm tweeter, 53 x 93mm woofer

Bluetooth version: 5.4

Features: Powerbank, Auracast audio sharing, IP68 rating, lossless audio via USB-C, AI Sound Boost, stereo pairing

Battery life: up to 24 hours (34Wh)

Connections: USB-C for wired audio and charging

Dimensions (hwd): 229 x 99 x 94mm

Weight: 960g

JBL TOUR PRO 3

Price: $399.95

Drivers: 10.2mm dynamic driver + 5.1x2.8mm balanced armature

Microphones: Six

Earpiece weight: 5.6g

Charging case weight: 71.8g

Charging time: 3 hours

Maximum music play time: 11 hours ANC off, 7 hours ANC on

Charging case battery life: adds 33 hours

JBL SOUNDGEAR FRAMES

Price: $169.95

Drivers: 25x9mm dynamic

Bluetooth: 5.2 (SBC & AAC codecs)

Battery: Lithium-ion 110mAh

Quoted battery life: 8 hours

Charging time: 2 hours from empty; quick charge 10 minutes for two hours play time

Dimensions (lwh): 161 x 150.5 x 53.7mm

Weight: 52g

Contact: Harman Australia
Telephone: 02 9151 0376
Web: www.jbl.com.au

SOUND
IMAGE

10 REASONS

to buy at a Hi-fi Shop

Your local hi-fi shop is passionate about sound. Why risk your music with anyone else?

	The Hi-Fi Shop	The Chain Store	The Internet
1	Talk to people with years or decades of hi-fi knowledge	Talk to people with days or even weeks of hi-fi knowledge	No people
2	Receive reliable personal advice	Bit of a lottery on the advice front	No advice
3	Expect to be asked about your needs and music	Expect to be asked about your budget	No filtering questions
4	Listen in a room environment before you buy	Listen over a noisy shop floor if you can listen at all	No listening
5	Have a nice coffee	There's a coffee shop three doors down in the Mall, mate	Make your own
6	Purchase with pride	Purchase in ignorance	Purchase with fear
7	Get a full warranty with local return point	Be offered an extended warranty you probably don't need	Warranty possibly void in Australia
8	After-sales service	After-sales what?	After-sales what?
9	Have an ongoing relationship	Rarely the same staff twice	No contact with staff
10	Relax and enjoy fine music	Relax and enjoy your mass-market bargain	Purchase and pray

LOCAL HI-FI SHOPS. The right place for the right sound.

ATACAMA EVOQUE ECO SE2 & MOSECO 6

MULTIMEDIA EQUIPMENT RACK & SPEAKER STANDS

Racks and speaker stands play an essential supporting role in allowing your hi-fi and AV equipment to perform at its best. The UK's Atacama has been providing engineering-based audio support for more than 30 years.

We don't talk enough about equipment racks in our magazines, yet we regard them as a given, a near-essential for any system. Modern hi-fi has evolved, components have changed, systems have shrunk, but rare will be any piece of electronics, any loudspeaker which does not benefit from being given a sturdy, low-resonance and level support.

For many systems, an equipment rack is the ideal solution. For hi-fi or AV components, a vertical rack of supported shelves is a significant space saver in stacking components while separating them each with individual areas of ventilation above and solid support below.

There is no shortage of options, but one clear distinction is between those which are simply furniture for any use, and those which are designed with specific attention to audio performance, by minimising the effect of vibrations and mechanical energy on the shelves, and so for the products located thereon. That distinction reduces the pack to those support companies which are better known in hi-fi circles. And there is one brand which has been providing solid support to audio equipment for more than 30 years: the UK's Atacama Audio.

Atacama in the UK

Sambell Engineering Ltd in the UK is the company behind the Atacama brand, originally an aerospace engineering subcontractor for the likes of Rolls Royce and British Aerospace. But in the 1980s audio fans inside the company were quietly developing a revolutionary hi-fi speaker stand. That design went public in 1992 as the 'SE' series of speaker stands, soon garnering the first in what would become a long series of five-star reviews and awards from hi-fi magazines. The Atacama brand soon expanded into equipment supports, with the first Equinox Series of hi-fi racks arriving in 2001.

Designs have evolved since then, needless to say. The company's engineering background has led it to explore new materials, and especially bamboo composites, which have become a focus since 2011, this natural renewable material not only yielding performance benefits but also offering an eco-friendly alternative to traditional hardwoods.

Evoque Eco 60-40 SE2

Atacama's racks are nearly all modular, so that various combinations and heights can be configured, while they may also come with shelves available in different widths and depths, all variations which allow the perfect fit and layout to be achieved.

Add to this the variety of different designs and finishes across the different ranges, and you might need friendly advice, or a friendly dealer, to find your way through to the perfect Atacama solution!

Take the rack that we have tested here, the Atacama Evoque Eco 60-40 SE2. It's the latest version of the Evoque rack range, which has been winning awards from WHAT HI-FI? (a sister publication to *Best Buys Audio & AV*) since 2019. The Evoque

Eco's shelves are made of Atacama's high-density carbonised bamboo, for which the company claims sonic advantages over hardwood and veneers, including a 'pore' structure which assists vibration absorption and resonance control. The pictured racks here are in the dark finish of Atacama's bamboo options.

The '60-40' in this model's name describes the shelf size: 60cm wide and 40cm deep, though radiused outward at the corners and curved inwards slightly on the sides in its latest version, the better to avoid standing waves, says Atacama, while also directing resonance energy for dispersal via channels cut underneath each shelf, three-dimensional geometric designs with multiple curves that are designed to neutralise high-frequency harmonic energy by directing it away from the supported equipment towards the leg-grounding components.

The legs have no end of innovation: another of the 'SE2' upgrades over the former mere 'SE' are Advanced Bronze Isolation Coned Spikes; there are also two dampening 'gaskets' inside each leg designed to reduce ringing and to isolate the aluminium components from the outer leg collar. The leg lengths are mechanically tuned, 15mm longer than on the standard Evoque, lowering the resonant frequency.

> "The brand's engineering background has delivered ever-increasing attention paid in its racks and stands to their vibration-channelling and isolation needs."

We could go on, but the upshot is that each shelf can hold up to 30kg of hi-fi or home cinema while providing the best possible performance environment for your equipment to perform. The four-shelf Evoque Eco 60-40 SE2 retails at $4039.

It arrives flat packed, but it took us barely 15 minutes to have it up and ready to receive our equipment. It feels well-engineered; it looks nicely finished. There's no cable management, which makes things versatile, if potentially ending up looking a little messy at the rear, with cables spreading where they will.

With the rack built, at first glance there seemed little that was different to its award-winning predecessor, the Evoque Eco 60-40. But a closer look shows the tweaks. The most obvious difference is the curve to the shelves of the SE2 version, but in the legs too, the improved decoupling from the shelves. The legs come in standard length options of 165, 215, 265 and 300mm, and have an internally mounted weight that controls how they resonate, while being terminated by slightly rounded brass spikes to offer a degree of mechanical grounding between layers. The legs are only available in one colour: satin black.

There are some people who don't believe that an equipment support can make much of a difference to the sound of their system. But as we try a range of products on the Atacama Evoque Eco, we're left in no doubt as to the improvements such supports can make.

While a rack is obviously not in the signal path, if it handles all that vibrational energy well, the system can do its job better, especially for disc players, where proper levelling is also essential, for a CD player as much as for a turntable, and given those benefits we were quickly struck by how much more agile and dynamic our CD player sounded when used on the Atacama. With Hans Zimmer's *Like A Dog Chasing Cars* from the 'Dark Knight OST', we were aware of more detail, a greater separation between the dense instrumental strands.

The price of Atacama's Evoque Eco 60-40 SE2 is hardly trivial, but you've got to put your equipment somewhere, and the benefits of a suitably-sized and properly-engineered audio rack are clear; you also gain a beautiful piece of technical furniture. If you want to hear just how good your system can sound, it's worth the investment.

Moseco 6 speaker stands

All the arguments about vibration isolation and the benefits of solid support are multiplied when considering loudspeakers. Loudspeakers are built to resonate in a very specific way. If you place them on something else that resonates, they will resonate in and out of sympathy with that, which may entirely change the performance of the speaker (and not, unless wildly fortunate, for the better). If speakers wobble as they vibrate, you're making a mockery of all the engineers' efforts to have the cone move in a particular way.

Their other advantage is height. You need a speaker's tweeters to be at your ear

Atacama
ATABITES
HIGH DENSITY
FILLER MATERIAL

level when sitting down, not one of them on top of the cupboard in the corner, or sitting on bookshelves up above your true plane of hearing.

So the first calculation for any pair of speakers is what height from the ground they should be; Atacama has several designs of speaker stands and offers them at different heights. This Moseco 6 design is a key model and a multiple award-winner, the stands rigidly built, with two metal columns of carbon steel — the larger 51mm front column is fillable for better stability, while the smaller rear 28mm column provides cable management (the 18mm hole should accommodate cables up to 15mm diameter, if you attach your bananas or spades afterwards!).

In terms of finishes, satin black is standard for the columns, while the large base panels come in medium or dark bamboo, again from sustainable forestry, here providing solid support and a neat look, as well as a styling match with the brand's bamboo racks.

Those with very large standmounts might find the top plate a little on the small side, but Atacama has an optional 'Large Top Plate pack' which increases the surface to 160 × 220mm from the standard 130 × 170mm. As for height, the Moseco 6 design puts the plate 615mm high, not including any lift from your floor contact using the provided adjustable M6 floor spikes (with spike shoes available as an option to protect delicate floor coverings), while mini gel pads can be fitted to the top plate to protect the base of your loudspeakers, or conceivably used below instead of the spikes.

For other height requirements you vary the Moseco number: seek out the Moseco 5 stands for 515mm height, the Moseco 7s for 715mm, and up to the Moseco 10 at a full metre (1015mm). Their weight capacity is 7.5kg per stand.

We were impressed with how weighty and dynamic these stands made our system sound, especially once we'd loaded the front columns with a tub and a half of Atacama's Atabites, which are little zinc-coated discs, a high-density inert filler (the zinc coating reduces any oxidisation or degradation); these tubs sell at $129 for 7.5kg. The idea is to reduce ringing and give a more sonically 'dead' platform for the speakers, and Atacama notes you can adjust the amount of filler used to find the optimum for your speakers, though it estimates you'll need two tubs for a pair of Moseco 6 or 7 stands, three tubs for the tall Moseco 10s.

Suitably loaded, these Atacamas allowed our system to flourish by letting the speakers deliver their best in terms of punch, detail and rhythm. There was texture to basslines, a twang to guitars, and expressive vocals: basically a well-grounded speaker will deliver greater accuracy, and more of what your system is capable. The Mosecos certainly achieve this task, work well with a variety of speakers across the price range, and at their price of $549 a pair, represent one of the best-value stands we've come across.

Verdict

It's no surprise Atacama has become so well-established, highly-regarded, and loaded with awards in both its UK home and overseas. The brand's engineering background has delivered ever-increasing attention paid to its racks and stands, to the vibration-channelling and isolating needs of hi-fi equipment to perform at its best, while also achieving good-looking supporting equipment using natural and eco-friendly materials.

In our overall experience with the longstanding Atacama brand, and specifically with the Evoque rack and Moseco speaker stands reviewed here, Atacama is reliably adept at providing attractive and high-quality solid support to improve your system's sonic success.

ATACAMA RACKS & STANDS

- Engineering-level vibration support
- Modular and versatile
- Good-looking eco materials
- Lets your system reach its potential
- No cable management on rack

ATACAMA EVOQUE ECO 60-40 SE2
four-shelf dark bamboo
Price: $4039
Shelf size: 60 x 40cm
Modular: yes
Maximum load: 30kg per shelf

ATACAMA MOSECO 6
speaker stands
Price: $569 (pair)
Height: 615mm excluding spijs
Top plate dimensions: 170 x 130mm
Base dimensions: 280 x 240mm
Weight capacity: 7.5kg per stand

ATACAMA ATABITES
Price: $129.00/tub (7.5kg)

Contact: Audio Dynamics
Telephone: 03 9882 0372
Web: atacama-audio.com.au

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SENNHEISER HD 550

OPEN-BACKED OVER-EAR HEADPHONES

The latest HD 550 headphones expand Sennheiser's collection of cabled over-ear models. They maintain the company's balanced sound, so that their strongest competition may be from their own similar siblings.

These are cabled open over-ear headphones, a type which has long been considered restricted to certain uses, being relatively unsuitable for others. Their cabled nature counts against using them as a moveable feast: besides, if you're out and about then such open headphones will let surrounding noise in, potentially swamping your music, while also letting your tunes escape into the wild, where they may annoy fellow travellers on the commute or garner irritated glances in an office environment.

Even if you're at home, you can't use open headphones in a shared space, for the same reasons. So traditionally we have come to think of open cabled headphones like these as being for true solo listening, at home, alone. Real hi-fi headphones.

But this has recently changed. Open headphones have become a popular choice with gamers, who are of course often at home alone (although connected to the world) in darkened bedrooms as they mash away at their controller buttons. Yet we gather, from those who know a little more about such things, that gamers are now favouring open headphones even when they congregate in teams and groups for gaming sessions, perhaps gathering useful real-world information overlaid upon their gaming soundtracks.

And in addition, the world at large is changing. We have noted of late that previous consideration of fellow commuters seems to be on the wane, judging from the many people who now play phone videos on the bus and in airports without using any headphones at all. So perhaps today's self-obsessed world has become better suited to the more widespread application of open headphone designs.

Equipment

We, however, will continue to judge such headphones primarily in the context of being home alone, and listening to music, or movies, or podcasts or audio books. And although Sennheiser does mark this model as a "microphone-ready design", we will not be attempting to connect a microphone to the HD 550 and thereby Twitch our way to fame. Shocking traditionalism, perhaps, from longstanding hi-fi reviewers, but through many decades we have always been very at home with Sennheiser, a brand which has handled our tunes for as long as we have been listening.

For most of those decades, the Sennheiser family was still running the operations in Wedemark, Germany. In recent years the consumer brand has been licensed to a Swiss medical giant, Sonova, and the manufacturing now takes place in Ireland. But much of the development team remains in Wedemark (or it did last time we had a response out of Sonova on the subject), and we gather major developments still pass through the approval of the Sennheiser brothers at some level. The Sennheiser DNA remains recognisable.

One change largely since the Sonova licensing has been a simplification of design. Take the brand's Momentum headphones, for example. The earliest examples were stylish and colourful; they had an external headband like an update of a classic pilot's headset. Whereas the latest Momentums are almost featureless grey or black headsets, as are Sennheiser's Accentum wireless headphones.

These new HD 550 models are not much different to look at either, aside from having open-backed headshells rather than closed, and a slightly different band and yoke mechanism. Look at Sennheiser's range and there is also a very similar-looking HD 505 (given copper highlights as an Amazon exclusive model at $449.95, discounted to $390 as we write). There's a similar-looking HD 560S at $319.95. The new HD 550 is priced at $499.95 on the local 'Sennheiser Hearing' site. As we write that's exactly the same price as the closed-backed but open-sounding (and again similar-looking) HD 620S model, discounted from $599, and the superior-looking HD 650, currently discounted to $499 from, er, $799.95.

Having so many similar, similar-looking and similarly-priced models is confusing to us, so we assume it is also confusing for consumers. As for the similar and largely plain exterior designs (see below), we were told recently that market research had revealed to the company that while some users did love the earlier more-engineered Sennheiser look, those people were a very small percentage of the market, and since the goal was to reach a wider market, out went the bling and in came the greys and blacks (with occasional cream or copper colourways to relieve the monotony).

So the HD 550 headphones do rather lack the physical presence and grandeur that still exists in Sennheiser's higher models like the HD 660S2 (up at $949.95); they may even disappoint on physical inspection after seeing them look so shiny in the company's fly-around video presentation. Then again, keeping things simple and common across models plays to reliability, and to potentially bringing better sonic components to this level of headphone.

SENNHEISER
HD 550

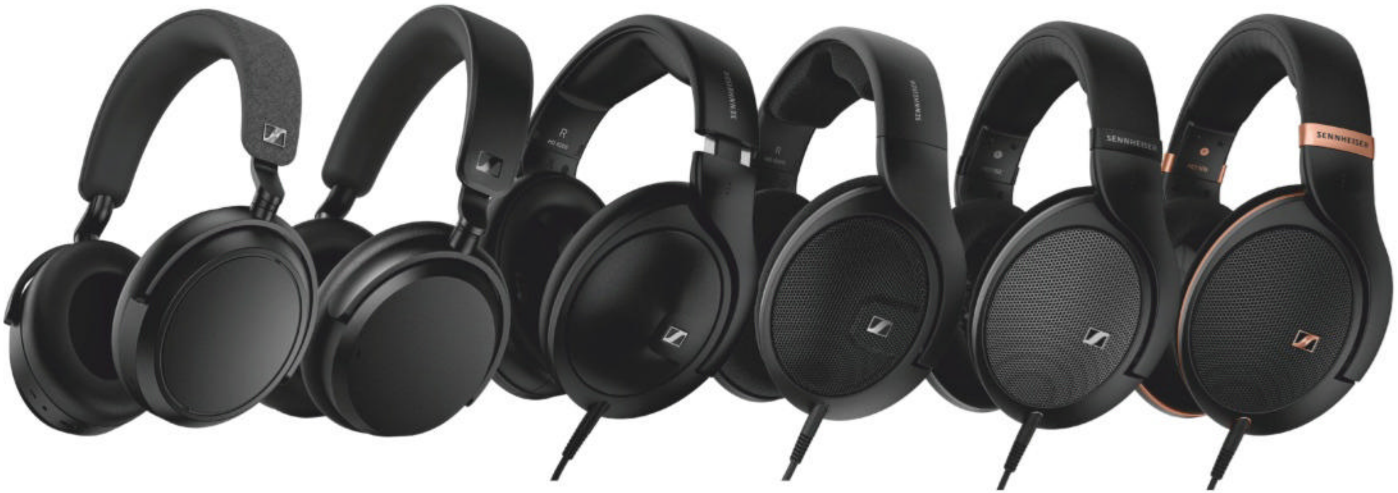
Listening sessions

That does seem the plan for the HD 550, because during listening there were moments when we might have been wearing far more expensive models. They use a custom 38mm 150-ohm transducer made at Sonova's production facility in Tullamore, Ireland, with a quoted frequency range of 6Hz to 39.5kHz (presumably a -10dB envelope), and lower than 0.2% total harmonic distortion (at 1kHz). The drivers are positioned to angle back towards the ears, through acoustically-transparent and largely visually-transparent dust covers.

The HD 550s certainly leverage the two biggest advantages of cabled use over Bluetooth: the potential for greater detail in the signal, and for greater available power to drive the headphones. With Bluetooth, signals have to be digitised and then squeezed through the invisible Bluetooth pipe. A cabled signal stays analogue all the way, and depending on your source it may have near-infinite detail! And the HD 550s come loaded with the ability to deliver that detail. We loved the delicacy of the drum fills on Fiona Apple's recent cover of Neil Young's *Heart of Gold*, the texture and acoustic around the little snare paradiddles, and the breathy edge to her vocals.

Or the scintillating guitar picking opening Suzanne Vega's *Witch*, panning out and swirling around an already-bright central vocal, with plenty of width and air from the HD 550s before the drum entry takes the song to rockier territory.

The second advantage of cables over wireless is straightforward power — Bluetooth headphones are very often



All rather similar? Sennheiser's Accentum, Momentum, HD 620S, HD 560S, HD 550 and HD 505 show the company's paucity of individual styling.

annoyingly volume limited, whereas these cabled headphones are powered by whatever quality of headphone amplifier you can give their 150-ohm impedance. The HD 550s certainly seemed to love good power, and they sounded their best given more than modest quantities, subject to the usual warnings on safe use and taking care of your ears. The point is that you can enjoy minimal distortion up to relatively higher levels. Aphrodite's Child's *Break*, say, could be played loud enough without distortion to give real impact, while through the HD 550s the same band's early single *Five O'Clock* sounded wildly synth-tastic up loud on its choruses, organ-rich in its laidback verses, showing Vangelis' rock chops as he fills between Demis Roussos' soaring vocals.

Keeping things emotive, Arvo Pärt's *Cantus in Memory of Benjamin Britten* piled on the pathos, the HD 550s easily maintaining its bass swell while still separating the higher strings and handling the recurrent tolling bell — a challenge for any single driver to handle, yet held together perfectly by the HD 550s.

Of course a planar magnetic at a far higher price could spread the air further, weave more textural magic. But there was no problem sinking into the music under these dynamic open cans, and they benefit from being able to give some simple dynamic punch as well. The heartbeat on the intro to the new mixes of Pink Floyd's 'Live At Pompeii' has an even tighter and possibly deeper kick to it than the infamous 'Dark Side' intro sequence on which it is based, and the HD 550s really did push down to genuinely deep bass for this impressive impact.

We did have the similar HD 560S to hand; it made an interesting comparison, its sound perhaps less controlled, but substantially more open-sounding and with a far better and more natural delivery of both bass and high-end; on track after track our preference was clearly for the cheaper HD 560S model; the HD 550's main benefit was improved comfort, mainly from its significantly lighter weight. A two-piano 2023 recording 'Rachmaninoff For Two' made the comparison very clear: through the HD 550 it was one big piano sound with stuff going on; through the HD 560S it was clearly two pianos delivering much improved and separated dynamics.

On the other hand, the HD 550's sound was much advanced in openness and dynamics over the Momentums via Bluetooth, showing the advantages so easily gained using a cable into open headphones.

Verdict

Ultimately we'd label the HD 550s' balance as almost entirely neutral. They deliver sufficient bass but don't pump up it up like a closed street headphone, nor mush it up either, simply delivering things cleanly. The midrange isn't drippingly gorgeous or heart-meltingly forward, but it's well-balanced against clean higher frequencies that never shriek yet avoid any rolling off or the enclosed feel of closed headphones. It's this additional spaciousness and lack of pumpiness in which the open design stands out from closed models, and while we'd recommend a comparison with the HD 560S before you choose, the HD 550s' balance maintains the reassurance of a continuing ability to provide predictably enjoyable sound at whatever level you choose to engage with Sennheiser.

SENNHEISER HD 550

- Well-balanced open sound
- Analogue cabled quality
- Light and comfortable

- Sound spilling limitations
- Other Sennheiser rivals

Price: $499.95

Type: open-backed, overear, cabled, dynamic

Cable length: 1.8 metres minijack with adaptor

Ear pad material: synthetic velour

Quoted frequency response: 6Hz – 39.5kHz (no envelope stated)

Nominal impedance: 150 ohms

Weight: 237g

Contact: Sennheiser Hearing

Telephone: 02 9910 6700

Website: sennheiser-hearing.com/en-AU

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FUTURE

AMPLIFY AV EXPERIENCE CENTRE

185-inch screen, 19-channel sound, $500k system… and that's just one of three cinema rooms… Step inside Port Melbourne's all-new, all-singing hi-fi and audio-visual destination store.

“It's the sensory and emotional experience that matters in music and movies; it's not just about the tech specs,” said Jeremy Bouris, founder and Managing Director of Audio Active Australia, at the launch of the distributor's brand-new audiovisual demo space-cum-experience-centre, the Amplify AV Experience Centre. Though naturally, when one (of three!) cinemas in that centre has roughly $500,000 worth of equipment in it, it's difficult not to throw some specs around — particularly when they include Sony's reference VPL-GTZ380 laser projector beaming onto a 185-inch screen, a 9.4.6-channel Pro Audio Technology surround system with 19,000W of firepower behind it, and 12 luxury leather seats that (we can tell you from first-hand experience) have more buttons and boujiness than those in Village Cinema's Gold Class.

Bouris and his wife Melanie bigged up the new reference cinema room at the evening opening of the Amplify AV Experience Centre earlier this month before the red rope barrier across the bottom of the staircase leading up to it had been dropped, and when the time came to let in keen visitors, the not-so-humble brag proved more than justified.

Back to that momentarily.

For customers and dealers

The Amplify AV Experience Centre is the result of a six-month renovation of Audio Active's Port Melbourne residence, designed as an extension of its national retail partners while providing inspiration and hands-on experiences to integrators, dealers, and consumers across Australia.

“The Amplify branding allows us to speak directly to discerning end-users who want to experience the very best in audio-visual performance,” as an Audio Active spokesperson put it.

“This is our first experience centre to bring suppliers and dealers together,” added Melanie, “to work with installers, designers and builders, as well as consumers to experience products, and to provide training, technical support and brand awareness to empower our partners.”

To that end, the two-storey space comprises three cinema rooms, two of which are more modest than the afore-

AMPLIFY
AUDIO VISUAL

Melanie and Jeremy Bouris at the venue launch: "It's the sensory and emotional experience that matters..."

mentioned reference one, although not by much — we're still talking 130 to 155-inch screens lit up by high-end Sony projectors, nine to 15 channels of audio delivered by Theory Audio Design, StormAudio and Anthem kit, and leather recliners which, by the way, come courtesy of Audio Active's own new DTX brand. (Of course, only now, looking at the trio of armchair models available online, are we kicking ourselves for not trying the one with heat and massage technology... $3499 each, if you were wondering.)

There's also a hi-fi room and an open-plan TV-centric lounge (not forgetting a meeting room and kitchen) for entertaining and educating visitors on products from the distributor's established two-channel portfolio, which includes Paradigm, Martin Logan and Luxman, as well as TVs and projectors from Sony. Indeed, it was quite the welcome sight to be greeted by a Luxman L507Z integrated flanked by Paradigm Founder 100F floorstanders as we walked into the centre, only beaten, in fact, by the presence of Luxman's vacuum tube MQ-300 amplifier and D-380 CD player on display.

Paradigm and MartinLogan have partnered with Audio Active since Jeremy started the distribution company 15 years ago, having left his finance executive position at JB Hi-Fi (formerly owned, of course, by Jeremy's father, Richard. During the launch, Jeremy thanked his father for "sharing his lifelong passion, which has now become my lifelong passion too"). That Audio Active has also partnered with Sony for more than a decade tells you all you need to know about the company's expertise and knowledge of its brands.

Movie platform arrives

As you can read elsewhere in this issue, there's a new addition to the established partners of Audio Active: Kaleidescape, which it has brought to Australia officially for the first time, the world's only digital movie provider with lossless audio and full reference video quality. Kaleidescape's movie store has launched here in Australia, as have the Terra Prime servers and the Strato V, C and M movie players.

Overkill? Probably. Overdone? Not one bit

So, armed with a champagne flute and cup of popcorn, let us return to that reference, no-expense-spared cinema room. For most of us peasants, such a home cinema set-up is unobtainable... overkill even... this reporter has fewer chairs in her entire home. But it serves a purpose for those who are fortunate enough to splurge on their movie passion, whether to that extent or somewhere below it (many potential

> "Many demo spaces turn up the subs to 'wow' levels. The main Amplify AV cinema room rather produced one of the most authentic and least showy renditions we've come across..."

> “The Amplify AV Experience Centre is the result of a six-month renovation; it aims to provide inspiration and hands-on experiences to integrators, dealers, and consumers…”

customers will sample at least two of the centre’s cinema rooms during their visit by way of comparison).

But of course we’ve seen more than our fair share of high-calibre AV outfits, and despite the doubtless quality of the kit showcased within them, many such spaces can easily sound overcooked. Not this one.

During the demo, 12 guests squidged down into the DTX chairs and watched snippets from *No Time To Die* (Italy car chase scene), *Top Gun: Maverick* (mission test run scene) and *A Star is Born* (*Always Remember Us This Way* scene). That’s 15 minutes of high-octane stuff that translated to a fast-moving picture and a bass-dominating score, ending with a few minutes of a live concert music performance.

While, in our experience, many demo spaces tend to fall into the trap of turning up the subs to ‘wow’ armchair-gripping levels — akin to turning up a TV to max brightness in a store to dazzle bystanders — the main Amplify AV cinema room rather produced one of the most authentic and least showy renditions of its type that we’ve come across. The system was exceptionally well set-up and calibrated, even if a couple of likely software-related sound/picture syncing stutters did take place during the dem. But there was plenty to ‘wow’: the pinpoint precision of the rapid gunfire sound in the Bond movie; spot-on aeroplane overhead audio effects in the latest *Top Gun*. And there was rumble, oh yes — and just not the distracting kind that overshadows everything else in the mix. When Lady Gaga’s vocal and piano filled the speakers, the centre and front channels were able to shine while the crowd subtly but effectively filled the surrounds.

We’ve also seen many a native 4K Sony laser projector strut its stuff over the years, and with these kind of action scenes it won’t take you more than a matter of seconds to understand why these are so critically acclaimed, too.

As a room in which to see and hear what’s possible at state-of-the-art level, it succeeds. We left impressed, also keen to try out the other rooms. And that’s all the impression the Amplify AV Experience Centre could have hoped to make that evening. Not a bad way to celebrate Audio Active’s 15th anniversary, eh?

SCREEN IMAGES: AdobeStock/Firefly

AMPLIFY AV EXPERIENCE CENTRE

Open to the public: from 20 May 2025

Address:
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